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HULL'S SURGERY IN WAR

By Major A. J. HULL, F.R.C.S.

With Preface by Sir ALFRED KEOGH, K.C.B., and Contributions by Lieut.-Col. E. M. PILCHER, D.S.O., F.R.C.S.; Lieut.-Col. L. W. HARRISON, D.S.O.; D. G. GREENFIELD, M.D., F.R.C.S.; Captain H. TANNER, M.B., B.S.; Capt. W. MILLER, M.D.; Capt. E. N. SNOWDEN, M.B., B.S.; and Lieut. W. A. EDWARDS, M.B.

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An Address
ON
THE TREATMENT OF GUNSHOT WOUNDS.*

BY SIR BERKELEY MOYNIHAN, M.S., F.R.C.S.,
LIEUTENANT-COLONEL R.A.M.C.;
CONSULTANT SURGEON, NORTHERN COMMAND.

THE problem of the treatment of gunshot wounds has been profoundly modified, if indeed it has not been radically altered, by the knowledge gained during the present war. Neither the civil experience of the last forty years, nor any recent military experience, had prepared us for the kind of work which from the very outbreak of the campaign it was our duty, as surgeons, to perform. The new and unexpected things which occurred were due to a set of circumstances each one of which was in some degree different from anything we had observed before. The character of the missiles in respect of the mode of flight and velocity was not that with which former wars had made us familiar. The damage inflicted upon the tissues was far greater than and different in quality from that commonly seen in South Africa; the organisms carried into the wound from the surface of the body, from the earth around, or by fragments of clothing, judged by their clinical results, transcended in virulence or in fecundity anything known by the present generation of surgeons; and, finally, the soldier, in the earlier months of the war at least, had undergone so serious and prolonged a strain, before being wounded, that he often fell an easy victim to a bacterial onslaught of great ferocity. The efforts of the surgeons to deal with the wounds so grievously infected were at first lamentably inefficient. Suppuration surpassing in profusion or in malignity anything we had seen before occurred in the majority of cases, and the efforts which our civil experience suggested as the most helpful did very little to check the activity of the process. Failures were spoken of, the failure of the antiseptic system, the futility of aseptic methods, and Lord Lister's immortal work was belittled or held of no account. One of the first tasks I set myself on returning from France early in 1915 was to read again Lord Lister's papers with the new knowledge I had gained on foreign service to help me to a better understanding of the problems with which he had to deal fifty years ago. All that Lister wrote can be read with great advantage to-day. The essential problem he confronted and conquered is that which we have still to meet, and the principles he laid down are as strictly applicable now as they ever were. Lister clearly distinguished the difference between the prophylactic and the therapeutic value of antiseptics; he emphasized the all-importance of the former, and pointed out the inadequacy of the latter. The work of surgeons, since Lister taught, has depended for its almost incredible success upon the prevention of infection in wounds deliberately inflicted; not upon the control of an infection already established. This by comparison is a trivial matter. Lister, however, needs no defence, and if he did, none more eloquent and unanswerable could be written than that which is found in his own papers.

What, then, were the several new factors that had to be considered in this war?

In the early days a very large number of the wounds were inflicted by rifle fire. The German bullet has a muzzle velocity of approximately 1,000 yards per second. In the first 800 yards, or thereabouts, the flight of the bullet is not steady but "wobbling." There are three movements—a movement forward along the line of flight; a rotatory movement, in which the bullet spins round on its longitudinal axis as a result of the "rifling" of the barrel; and a third movement, a "mouvement de bascule" of such a character that while the point of the bullet keeps steady the base of the bullet is moving round a circle, or an ellipse, of a gradually diminishing size. The result of this last form of motion is this, that when the bullet impinges upon any substance, even the soft clothing or the flesh, the infinitely brief arrest in the point which strikes first allows the base, which is, of course, much heavier, to overtake the apex, and the bullet then lies sideways, or begins to turn over and over as it ploughs its way through the soft parts. In this early part of its trajectory the missile has, of course, a great momentum; it is a heavy bullet, travelling with great velocity. The consequence is that the damage inflicted is not confined to the track it rudely makes through the limb; the parts around the track are damaged also, often to a great extent. Every wound, therefore, caused by a bullet at short range, consists not only in a visible tearing and destruction along the path the bullet has followed, but in a dead zone everywhere surrounding that track—a zone in which death and destruction or disintegration of the parts has occurred by reason of the tremendous concussion produced by the bullet as it tore its way clumsily through the tissues. Sir Anthony Bowlby has proved this by a series of exemplary instances. In one of these the kidney was wounded in its lower pole; the upper pole appeared normal to the naked eye, yet on microscopic examination the tubules were seen to be disorganized. Other examples of the widespread damage inflicted are quoted in his Bradshaw lecture. And even that is not all. The momentum of the bullet is such that to everything it encounters it imparts some of its own velocity. As we all know, shreds of the clothing or belt, or the contents of the pocket, may be carried deeply into a wound. So also are pieces of skin or muscle. And if the bullet should chance to strike a bone, the bone is not only broken into many fragments, the "splinter" fracture, but to all fragments there is conveyed enough of the momentum of the bullet to convert them into projectiles also, capable of tearing a way into the softer tissues. Many of the wounds, therefore, were deep, irregular in shape, with large or small cavities; of the variety the French term "anfractuous." Into these recesses blood escapes, and owing to the tearing and unequal retraction of cut muscles, pools of fluid may be shut off from the main track of the wound.

If a rifle bullet is not checked in the first 500 yards of its flight it begins to steady down, and probably when it has travelled 1,000 yards it is moving evenly. An injury inflicted then is of a quite different character. The bullet cleaves its way through the soft parts, bores a neat hole through a bone, and little destruction is done. We see many cases where the chest or abdomen are traversed from side to side, or where the neck has been pierced, and, miraculously, no real damage has been done. Examples of this form of injury were of course common enough in the South African war. They have been less frequent in this war because the range has often been shorter, and the bullet in respect of velocity and weight is different.

The campaign in Flanders and in Northern France has been conducted on fields many of which have been as highly cultivated, and were therefore as heavily manured, as any in Europe. Generations of husbandmen have earned their livelihood from this earth, and it has therefore been necessary to enrich the soil by applications of manure—the faecal material of horses, cows, and pigs. The contact between the soldier and the soil upon which he fought has never been more intimate. The hands and faces, bodies and limbs, were grimy with the mud and dust that penetrated and clung to the clothing of these soldiers. And opportunities for the change of clothing were not frequent. In the earlier days of the war men were commonly a couple of months or more without the chance of taking off their trousers. They were literally covered from head to foot with clay and earth and mud. And this mud, largely manurial in origin, contained microorganisms which, given the chance of growth in a fertile medium, proved luxuriant. They were the organisms of tetanus, the gas-gangrene bacillus (*Bacillus perfringens*, *Bacillus aërogenes capsulatus* of Welch), the *Bacillus coli*, putrefactive organisms of several forms, and a streptococcus which has since been recognized as the enterococcus of the French writers. All were of faecal origin. It was very interesting to find that while I was in France we rarely found the *Staphylococcus pyogenes aureus*, the common cause of suppuration in the wounds of civil practice at home. It was only at a late stage in the history of the cases that this organism invaded the parts.

In the early months of the war the soldier who was wounded was often wearied almost beyond endurance by

* Delivered at the opening of a discussion on the treatment of gunshot wounds at the Harveian Society of London, February 24th, 1916.

excessive exertion, loss of sleep, and unceasing anxiety and strain. When I had the opportunity of visiting field ambulances and some clearing stations I was struck with the condition of the patients on admission. As soon as a man reached shelter and quiet he fell asleep. Even during the dressing of his wounds he often slept heavily, and the temptation of hot soup or the inevitable cigarette could hardly persuade him to rouse himself for more than a few moments. Left to himself he fell asleep at once. Even at the base hospitals I have known men sleep for forty-eight hours with barely a movement, other than that grudgingly made to take a drink. When the wounds were serious, as in compound fractures of the thigh, the men were often collapsed, cold, and white, with feeble pulse and flickering breath. A part, no doubt, of this reduction of the patient's vitality to so low an ebb was due to the delay in bringing him to an aid post or a field ambulance after he had been wounded. But no organization in the world can alter this, for it does not depend upon us, but on the enemy. Little or no respect is paid to the Red Cross near the firing line, probably because it is not easily visible. A stretcher party bearing a wounded man is exposed to the fire of rifle or of shrapnel, if at any moment it allows itself to be seen. This is equally the rule at night also. It is only by stealth, and at opportune moments, that a wounded man can be taken away, and the delay in tending him, which is deeply regrettable, cannot be prevented.

Such, very briefly, are the conditions present when a man is wounded. The missile inflicts great damage along the track it follows; hollows and recesses, caused by the unequal retraction of torn muscles, are formed everywhere, and within them effused blood may be pent up. In all the parts round this bullet track the parts are dead, offer no resistance to the bacterial invasion, but rather form the most nutritive medium that could be desired for the propagation of bacterial life. Into every tiniest cavity micro-organisms may be carried with some degree of violence, and sown everywhere on a fertile soil. The micro-organisms themselves, if not always of the greatest malignity, proceed to develop with the most intense activity, finding all conditions most suitable. They are given time to make headway, because of the interval that needs must elapse before a careful dressing of the wound can be undertaken. And the victim of this injury is himself very often in a condition of such fatigue or general collapse as will reduce his power of resistance much below the normal. Nothing, of course, in any degree comparable to this condition of affairs is ever seen in civil practice, and when the methods of civil practices were brought to bear on such cases they very naturally failed to give the results which had been expected of them.

The treatment of gunshot wounds may, I think, concern itself with (1) the prevention or control of the infection in wounds at the earliest possible moment after their infliction; (2) the reduction or the abolition of the infection after this has once been fully established in the wound. Before these matters are discussed, however, there are certain first principles, applicable to all wounds, which may be stated once for all.

A.

Excision of the wound, if it can be practised, is, of course, an ideal method. Unhappily the great majority of the injuries inflicted are of such a kind that the wound surfaces are most irregular. This is partly due to the actual damage done by the bullet; partly, indeed chiefly, to the very unequal retraction of torn muscles. An accurate excision of the surfaces of an anfractuous wound is, therefore, hardly possible in the majority of cases. When, however, it can be done, it is certainly the most desirable, for the zone of the infection once cut away there remains only a clean wound, which may be closed completely by suture, and healing by first intention may be secured. Wounds of the scalp, penetrating wounds of the knee-joint, and wounds of the abdominal wall all lend themselves at times to this method of treatment. The technique must be scrupulous and exact, or the good results are jeopardized. Colonel Gray has advocated this method in suitable cases and speaks well of it.

B.

In all cases of large or penetrating wounds a thorough examination and preparation of the wound for its subsequent dressings must be made. The administration of an anaesthetic is frequently necessary at the earliest opportune moment. A preliminary disinfection of the skin with some efficient antiseptic is clearly necessary. I regret to notice that iodine in some form or other is the favourite application. It is, of course, easy to use, and because of its colour it is easy to see whether, and to what extent, it has been applied. But its very simplicity is often a drawback, for we can never afford to forget that the ritual of surgery must on all occasions and at every moment be as scrupulous and exact as it is possible to make it. Perfunctory work at one period breeds laxity at others. It is not easy to sterilize the skin or to keep it sterile for half an hour by any method of preparation. I have more than once seen the tincture of iodine painted over a limb to which dry dung or earth was adhering. To believe in the efficacy of such methods is mere fetish worship. All the methods of iodine preparation of the skin are short of the best, and many of them are utterly inefficient. Abundant experimental evidence, which need not now be quoted, supports this contention, and a thorough trial by myself and others shows clearly that the quality of healing in operation wounds, when the skin has been prepared by any of the iodine methods, leaves something to desire. The cleansing of the skin is very important, because from organisms in the skin the wound may often be reinfected. This is more especially the case when the old form of civil dressing is used. This consists in applying a large amount of gauze, a mass, large or small, of wool, and finally bandages. When the discharges from a wound are free it is probably not many minutes before the gauze, with a layer of this wool, is soaked with them; until the next change of dressing the wound is then fomented with its own secretions, and the discharge infects the parts surrounding the wound. Unless, therefore, the skin is thoroughly cleansed afresh a new dressing is infected by it at the moment of application. The skin must be thoroughly cleansed, then, by ether soap, ether, benzine, petrol, or other efficient material, and an antiseptic liquid applied. Biniodide of mercury in spirit, Harrington's solution, Macdonald's solution, or Dakin's solution are the most effective. The latter, for the purposes of war, is to be preferred, for the subsequent irrigation and dressing of the wound may be carried out with the same preparation. After cleansing the skin adequate drainage must be secured. This may need the enlargement of wounds already existing, or the making of new openings into the large and irregular wound cavity. Whatever is necessary to secure full and free drainage must be ruthlessly done, since the necessity for the unimpeded escape of all wound discharges is paramount. If by any chance the *Bacillus perfringens* has obtained access to the wound the patient's limb or life will depend upon the sufficiency of the drainage. The wound is then carefully examined; any fragment of clothing or any missile felt at once, is removed; dead or soiled fragments of torn muscle are taken away; the whole wound is irrigated with the antiseptic solution which has been selected for the purpose, say Dakin's solution, and the parts are then immobilized and dressed.

C.

Immobilization of Wounded Parts.—I fear that far less attention than it merits has been given to the consideration of this subject. When a bone is broken splints are applied as a matter of course, and the parts, as far as possible, are immovably fixed. This is recognized as essential, not only because of the obvious diminution in the patient's suffering, but also because it is now well recognized that any form of movement in these war wounds aids appreciably the extension of the infection. It is not yet, I think, sufficiently realized that immobilization of wounds in the soft parts is equally essential. The comfort of the patient is sensibly increased, and the spread of infection is checked. Like every other useful measure, however, the immobilization of limbs can be misapplied. It is important to remember that fixation of legs or arms for an undue length of time may result in stiffened joints and withered muscles, and that months of painful passive movements and of massage may be needed to repair the errors of a few weeks.

1. THE PREVENTION OR CONTROL OF INFECTION IN GUNSHOT WOUNDS AT THE EARLIEST POSSIBLE MOMENT AFTER THEIR INFLICTION.

Shortly after the outbreak of the war the surgeons whose duties kept them at home were amazed at the severity of the infection in the wounds of soldiers returning from France. It was felt that adequate measures were not being taken to deal with these injuries. And discussions, both public and private, were frequent and not devoid of acrimony. Sterner measures were advised, the painting of all wounds with pure carbolic acid, or with tincture of iodine, which in the few years before the war had come again into favour among surgeons for many purposes. These various measures were indeed tried in France very thoroughly for a certain period. A large number of wounds were treated exclusively with pure carbolic acid, a certain number with tincture of iodine, others with simple field dressings. By the time the base hospitals were reached it was not possible to say what early measures had been tried. In all wounds suppuration was rampant, and the early and thorough applications even of pure carbolic acid were found not appreciably to alter the subsequent severity of infection. As we now look back upon that experience we realize, I think, that this failure was due, in part, to the feebleness of the antiseptics used. Pure carbolic acid, since Lister introduced it, has been taken as the standard of germicidal power. We have thought and spoken of pure carbolic acid as something of the greatest potency, all-conquering in its fight with germs. The truth is, of course, that, speaking comparatively, pure phenol is a very feeble antiseptic; and in contending with the organisms which had obtained a firm hold on the nutrient medium of these fresh wound surfaces it was little better than nothing. Its bactericidal power, always feeble, is much reduced when it is called upon to act in the presence of serum or pus; and when used in full strength it is apt to damage healthy tissues. It soon became evident, therefore, that if we were to fight with any chance of success against the particular type and degree of infection seen in the war, a few more powerful antiseptics must be discovered. It was here that Dr. Dakin came to our help. Dr. Dakin, an old student of the University of Leeds, had gone out to France early in 1915, with Dr. Alexis Carrel from the Rockefeller Institute in New York, for the purpose of carrying on medical research in a hospital attached to the French army. He had in mind various ideas as to the kind of antiseptic that might perhaps be used with success. One after another of these proved of little value, until finally a preparation was made from chloride of lime—bleaching powder. The details of the making of "hypochlorite" solution have been given by Dr. Dakin.[1] It has on examination proved to have a bactericidal value which is far higher than that of any antiseptic we have been accustomed to use. Pure carbolic acid, for example, will kill the *Staphylococcus aureus* in the presence of serum after acting for two hours when at a dilution of between 1 in 50 and 1 in 100. Dakin's solution acts in like circumstances at a dilution of 1 in 1,500 to 1 in 2,000. It possesses other qualities necessary in any germicide for use in conditions such as I have described. It is diffusible, it does not irritate unduly, it has a remarkable power of clearing away sloughs, it is easily obtainable, and it is very cheap. It has proved, in the hands both of the French and the British surgeons who have tried it, to retard or to prevent the development of sepsis more effectively than any other preparation that has been tried.

The preparation was first made at the University of Leeds by Professor Cohen to Dr. Dakin's formula, and I had therefore the earliest opportunity of acquainting myself with the virtues of the solution. I used it in cases of fresh and of old infection—in cases, for example, of compound fracture into joints where infective material had been introduced. In the cases in which the solution was used from the outset a powerful inhibitory effect was produced. Wounds healed as though no infection was present, and a thoroughly aseptic course was seen. In wounds where suppuration was already in full course very marked benefit was also seen, but of this I will speak later. It was quite evident, therefore, that in this "new antiseptic" a most powerful agent for good had been found. In several cases, however, a moderate degree of irritation, especially of the skin, was seen. The degree of irritation seems to vary in different cases and in different districts. It may be that the bleaching powder from which the preparation is made is not always of the same quality. It may be, as Dr. Dakin suggests to me, that the solution, which has a strong decomposing effect upon other antiseptics, forms with them, if they have previously been used in the wound, some compound of an especially irritating character. If irritation is seen, a reduction of the strength of the antiseptic is necessary, and still good results will be obtained; for, even in considerable dilution, it is far more effective than pure carbolic acid. The method of the application of the solution varies with the position and extent of the wound. If possible, the wound should be lightly packed with gauze wrung out of the fluid. Underneath the limb a photographer's "developing dish" should be placed, and at intervals of an hour or two a little of the solution should be poured on to the gauze lying in the wound from a Florence flask. The gauze which packs the wound should always be kept damp. It must never be forgotten that there is no such thing as a "gauze drain." Gauze does not drain any wound for more than a very short time; its meshes soon become clogged with lymph, and it is then a plug and not a drain. If the position and extent of the wound do not allow of this method, strips of bandage or of lint may be kept lying out of the wound and their free ends immersed in a dish of the solution, which is then slowly sucked into the wound, whose surfaces it keeps constantly moistened. Or small tubes, with many perforations, wrapped round with one layer of Turkish towelling, may be pushed into the recesses of the wound and left to pass out through a loose dressing of gauze and wool. At frequent intervals small quantities of the hypochlorite solution are injected slowly into the tubes and are diffused through the wounds. This is Carrel's method, and in many cases is the best of all. The skin around the wound may be protected by vaseline. The fluid must always be fresh—not more than five days old. As the solution is so cheap it is not a matter of importance if some quantity of it has to be thrown away. It is very important to ensure that no impermeable material lies outside the gauze, jaconet, or oiled paper, or rubber sheeting. Free escape must always be provided for the Dakin's solution, and for the wound discharges.

I have had the opportunity of trying another preparation of Dr. Dakin's, "chloramine," which in some respects is better than the hypochlorite solution. Chloramine is toluene-sodium-sulphochloramide. The molecular concentration required to kill staphylococci in presence of serum is one-fifth that of the hypochlorite solution. It is very soluble and very easily diffused. After many trials, Dr. Dakin succeeded in preparing chloramine gauze—a gauze in whose meshes powdered chloramine is held. This gauze, thoroughly impregnated with this strongly antiseptic powder, was made in the hope that when introduced into the wound the discharges would dissolve the powder little by little and carry it to all parts of the surface with which they come in contact. In our work in Leeds and elsewhere in the Northern Command we have used a certain amount of this new gauze, with results that justify us in believing that it is the best method so far introduced for checking and controlling the development of infective processes. I have used it in wounds very heavily infected, and its power of cleaning a wound, abolishing the offensiveness of discharges, and bringing about a growth of new healthy granulation tissue is very remarkable. The opportunities for testing its inhibitory properties are very few in civil practice, but such little experience as I possess suggest that it may prove to be one of the most powerful of all known methods for aborting a grave infection in any of the wounds of war.

The researches of Alexis Carrel appear to show that in wounds quite recently inflicted by bullet or by shell the infection at first is slight. When smear preparations are taken at once from the wound surfaces several fields may have to be searched before any micro-organisms are found. Such organisms as are present, even if of no great virulence, finding everything to their liking, grow apace. Every hour that elapses increases the extent, the penetration, and the virulence of the infection. I think, therefore, that the first attack made by a surgeon on a wound

received in battle should be by an antiseptic, and the most powerful which it is proper to use. I do not think that Wright's method is applicable, in the worst cases at least. For, as I have said, the condition of the soldiers who have received severe wounds is one of exhaustion, with lowered blood pressure, cold extremities, feeble pulse, and marked pallor. A few of these patients need infusion before any remedial measures can be attempted, and very many suffer from shock in greater or less degree. The introduction of saline tabloids into the wounds would probably not cause any outflow of serum, and if it did it would be a most undesirable result, for fluid cannot then be spared.

2. The Reduction or the Abolition of Infection after this has once been Fully Established.

When once the processes of suppuration are ablaze in a wound the problem of their treatment, as was recognized by Lister, is a far more difficult matter. To prevent putrefaction in a wound quite recently inflicted, or in a wound about to be made, is by comparison very simple. It is dependence on the certainty of this that has led to all the surgical developments of recent years. To control or check these processes when once they have become rampant is always difficult, and may indeed be impossible. Nothing could be more futile than the methods commonly practised in civil life. A freely suppurating wound may be irrigated for long periods with carbolic or mercuric lotions, and an antiseptic dressing applied; yet when the dressing is removed pus will still be found to pour freely from all parts of the wound, and to lie stagnant on the surfaces of the gauze and wool. In such wounds the old form of dressing is really a pus poultice. We did not realize its hopeless futility before the war, because serious infections in wounds in civil practice are nowadays very rare. A very brief experience of the bountifully purulent wounds of this campaign soon taught us that other methods than these must be found. The methods I have myself practised and seen practised in such cases are briefly the following:

The use of hypertonic salt solution—of a solution consisting of 5 per cent. salt and ½ per cent. sodium citrate. This is the method introduced many years ago by Sir Almroth Wright and revived by him during the present war. Probably every one interested in the surgical treatment of wounds has read all that Sir Almroth Wright has written; if he has not, he should do so forthwith. For his papers state the problems with perfect accuracy and with much insight. The principle of the hypertonic method is to make use of the bactericidal power of fresh serum, which is encouraged to flow from the wound surfaces by the application of a more concentrated saline solution than blood serum. A process of osmosis is at work. It is argued, or rather asserted, which is not the same thing, that serum is a fluid which will not osmose, but the fact is indisputable that when these strongly saline dressings are applied the discharge from all the wound surfaces is increased enormously in quantity. The patient is often compelled to drink freely, so considerable may the drain of fluid be. The discharge from the wound after the first few hours becomes clear, and within two or three days may be found sterile or of low bacterial content. The streptococcus seems the most resistant of all micro-organisms; after two or three days it is often the only germ remaining. As I go round from one hospital to another, or from one ward to another, I think I am generally able to pick out the cases which are being dressed by Wright's solution. The granulation tissues have a fuller, deeper colour, and the surface looks cleaner than when any other form of dressing is being used.

The best method of applying the dressing is that already mentioned as applicable for Dakin's solution. A loose packing of gauze, in a wound well drained, is kept constantly moistened with the salt solution. The copious discharges are collected in a dish. It is important to allow no wrapping up of the limb in wool or swathing in bandages, which restrict the free outward flow of the wound discharges.

There are, however, certain disadvantages in the long continuance of applications of hypertonic saline solution. After the wound has once become thoroughly clean, when the granulations are glowing vividly with health and the discharge is sterile, further treatment with Wright's solution is apt to cause haemorrhage, and the granulations become sodden and oedematous. It is therefore desirable before these changes take place to discontinue the treatment. One of two courses may then be followed—either the wound, when of suitable size and proportion, may be closed completely by suture, or its sides may be drawn together by strapping, or some bland dressing may be tried; a dressing of normal saline solution, or of red lotion if moisture is needed; or, otherwise, one with zinc or boracic ointment or sterile vaseline.

As a rule, the treatment by hypertonic salt is painless, but now and again one hears complaints of stinging and burning. To overcome this I had some tabloids made containing chloretone as well as the two salts. Chloretone is a local analgesic of slight power. I think there is some advantage in its use.

A variant of Wright's method, practised by Colonel Lawson and many others, consists in the application to deep anfractuous wounds of a gauze wick into the centre of which tabloids of salt and sodium citrate are placed. There are wounds so placed and of such depth that it is impossible to dress them by the methods applicable in surface wounds. Into the remote recesses of these one or more saline tabloids may be placed, either wrapped in gauze or placed in the extremity of the lumen of a rubber tube, round which a catgut ligature is tied so tightly as to prevent the tabloids from escaping. The tabloids excite a profuse discharge of serum, and the gauze or tube need not be changed oftener than once in every twenty-four hours.

A. E. Morison and Tulloch have advocated the use of a solution of magnesium sulphate in place of sodium chloride. In a preliminary communication[2] they point out the greater efficacy of their solution in ridding the wound of the streptococcus, which is the hardiest and tardiest inhabitant of all war wounds, and the equal efficacy of the solution in cleaning the wound, changing the quality of the discharge, destroying its offensive character, and causing that crimson glow of health which we like to see. In a very few days that blue edge appears on the wound which Solomon had doubtless in mind when he said "the blueness of a wound cleanseth away evil." I have seen some of the wounds treated by Mr. Morison, and can testify that, clinically, his claim is just.

I have had a large experience with Dakin's solution in the treatment of heavily infected wounds, in which the discharge was copious, and very offensive. Its virtues are remarkable. On the first day of trial it was used on three very septic cases in the Isolation Block at the Leeds Infirmary, under the care of Captain A. Richardson. The first case was one of severe infection of the arm arising in an enlarged olecranon bursa. The tissues were sloughing, greenish-black, bitterly offensive. The organisms were cocci, a diphtheroid bacillus, and a coliform bacillus. On the third day the sloughs had all cleared away, the wound was healthy, and no growth could be obtained from the discharge. In two other cases there was a pure culture of the *Staphylococcus aureus*. On the fifth day no organisms were found in the discharge in one case, on the fourth day a very attenuated growth in the other. This experience has been confirmed by many later cases. The most remarkable effect of the application of Dakin's solution is seen in the disappearance of all sloughing, dead and decomposed material. The wound casts them off with great rapidity, and a clean and glowing healthy surface remains. The discharge soon becomes clean, rather "sticky" and inoffensive, and the infection, however virulent, is brought under control or rapidly disappears. It is most essential to dress the wound as I have described. The old methods will not do. A mass of gauze, with tubes securing drainage must be in or on the wound and must be kept constantly saturated with fresh solution. The solution must be newly made every five days; it must not be heated before use, but applied cold or tepid; no other antiseptic may be used at the same time, and the skin must be protected from the occasionally irritant action of this powerful antiseptic. I have found it a little difficult to convince those responsible for the actual dressing of wounds that the old method of applying a layer or two of gauze, a pad of wool, and a firm bandage are utterly unsuitable for the septic wounds of war. Free

access of the antiseptic, constantly renewed, and free escape of the discharges are essential to clean and quick healing.

One of the old fashioned and one of the most successful methods of cleansing the dirty sloughing wound is by constant immersion and irrigation in a bath. For wounds of the hand and forearm, of the foot and leg, this procedure is very simple; but in wounds of the thigh, body, or chest it is difficult or impossible. It is not a matter of any importance as to the antiseptic used in the water; salt solution, a weak solution of carbolic acid, potassium permanganate, or tincture of iodine, all give the same results.

In the treatment of all gunshot wounds where the septic processes are raging, and the temperature varies through several degrees, an immense advantage will accrue from placing the patient out of doors. While in France I developed a great affection for the tented hospitals. There is great movement of air, warmth, and comfort; when a sunny day comes the side of the tent may be lifted and the patient enjoys the advantage of open-air treatment. Major Adye-Curran was the first to convince me of the striking effects caused by exposing uncovered septic wounds to the air and the sun. Wounds which were sullen in healing quickly brightened and became clean. Even in the winter and in Leeds and Sheffield we have some patients out of doors day and night. On Monday last I saw at the 3rd Northern General Hospital with Lieutenant-Colonel Connal a row of beds in the open occupied by ruddy, happy men with quickly healing wounds. I asked many of the patients how they liked the exposure, and all at once replied that they were quite happy and "wouldn't go inside to sleep if they could help it." I am confident we do not sufficiently take advantage of the immense help which open-air treatment can give to patients suffering from the serious wounds of war. I find that wounds clean more rapidly, patients sleep better, eat better, and feel better when they are kept out of doors night and day. The vagaries of the temperature chart need not influence our decision as to the wisdom of this treatment. Many years ago I learnt at Johns Hopkins Hospital that a high septic temperature was an indication for moving the patient on to a balcony rather than a reason for dreading the effects of exposure.

I cannot properly omit mention of the vaccine treatment of patients suffering from septic wounds. It is remarkable to find such widely divergent opinions among physicians and surgeons as to the virtue of a vaccine in any disease. When opinions are so wide apart, so confidently expressed, and so utterly irreconcilable, it is probable that opportunities for judgement are not identical. The changes in wounds are often so swift when any one of the recognized modes of treatment is tried, or indeed when little of value is done; a vaccine when tried is so often only one of several agents brought to bear almost at the same moment upon the patient and his wound; degrees of change in a wound are so difficult to express in terms of accuracy, and their appreciation depends so much upon the desires and prejudices of the observer, that argument and experience are alike fallacious. But no one can deny, I think, that a case has been made out for the trial of vaccines in appropriate cases, and in suitable conditions. The principle of the vaccine method is, of course, to fortify the blood serum in respect of those bodies which are inimical to the development or to the life of an invading micro-organism. If, therefore, a wound is imperfectly drained or not properly dressed, the administration of heroic doses of the most potent vaccine is merely futile. When, however, a wound is well drained and there is a free access of serum to the wound, with a free opportunity for its discharge into the wound and of rapid escape from it, then it would seem reasonable to suppose that the more potent the bactericidal power possessed by the serum, the greater will its effect be in causing the wound to clean and to heal. This suggests that the vaccine treatment, in conjunction with the application of Wright's solution, will be likely to give the best results. Of the great value of the streptococcus vaccine in the serious wounds of this war I am thoroughly convinced, and I have no doubt whatever that advantage would be gained by a freer use of it in cases of infection with this most obdurate organism. So much has reference to the therapeutic use of these agents. Their prophylactic virtues, if they possess any, have not yet been given a full trial in this war. It would be interesting to watch the effects of vaccines given before a man goes into action, or to a man immediately after his wound is inflicted. But the factors at work are so many, so variable from time to time, from place to place, and from man to man, that the scrutiny of inoculated cases would require powers of analysis denied to most of us. Sir Watson Cheyne, the redoubtable champion of the antiseptic methods—and, indeed, one of the earliest and most successful pioneers of modern surgery—has suggested that bacteriologists have a very great opportunity at the present time, and that they may profitably be employed in raising the immunity of new recruits against all the ordinary bacteria which occur in wounds received in war time.

One of the most sensational experiences in connexion with all wounds, even the most trivial, is the inordinate length of time that micro-organisms may remain dormant in the tissues long after healing is complete. I have seen tetanus and gas gangrene develop in wounds many weeks after their infliction when relatively trivial operations were performed upon them for the purpose of extracting bullets, shell-casing, or fragments of khaki cloth. Even the passive movement of a stiff joint, in whose neighbourhood there is a healed wound, may light up a raging septic process which threatens or takes the patient's life. It appears to be more especially in cases where compound fractures of bones have occurred at the primary injury that these grave troubles are apt to arise. A knowledge of the danger must warn us always to be on guard against premature surgical interference in wounds recently healed, or in sinuses which fail to close.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, 1915, ii, p. 318. [2] *British Journal of Surgery*, 1915, iii, p. 276.

REMARKS ON DELAYED TETANUS.

THREE CASES, IN ONE OF WHICH GAS GANGRENE DEVELOPED SEVENTY-THREE DAYS AFTER A WOUND.

BY GILBERT BARLING, M.B., F.R.C.S.,

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AT the 2nd Birmingham War Hospital we have had the unusual experience of three cases of tetanus occurring respectively fifty-one, fifty-three, and forty days after suffering wounds, the three cases being under treatment simultaneously.

CASE I.—*Tetanus with an Incubation of Fifty-one Days.*

Private M., aged 20, wounded August 20th, 1915, by shrapnel in the left shoulder and lower lumbar region of spine. The injured parts were treated immediately by iodine, and two hours later the patient was given a prophylactic dose of antitetanus serum subcutaneously. A few days later bits of shell were removed from the lumbar wound.

When he was admitted to the 2nd Birmingham War Hospital, on September 20th, the shoulder wound was found to be healed; the lumbar wound was suppurating, and a radiograph showed fracture of the body and transverse process of the fifth lumbar vertebra, but no foreign body. There was threatening of suppuration in the right axilla, and four days later a considerable amount of pus was evacuated from this region.

On October 10th he experienced difficulty in opening his mouth; some days later rigidity was noticed in the muscles of the back and in the sterno-mastoids.

I first saw the patient on October 30th; he was then sweating rather profusely, risus sardonicus was well marked, the masseters and sterno-mastoids were only slightly rigid, the belly muscles were very rigid; there was no distinct opisthotonos, though the muscles of the back were rigid. Antitetanic serum was at once given subcutaneously and continued until November 11th, when the tetanic symptoms had practically disappeared; altogether 37,500 units of the serum were given.

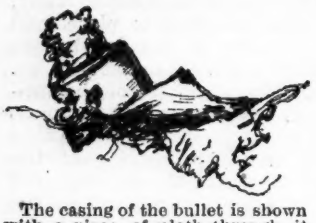
The symptoms in this case were much less severe than in the two about to be recorded.

CASE II.—*Tetanus with an Incubation of Fifty-three Days.*

Lance-Corporal M., aged 22, was wounded on September 25th, 1915, by a bullet which passed through the left forearm, fracturing the radius and ulna, and by another bullet in the upper part of the right arm. A dose of antitetanus serum was given subcutaneously two days later.

On admission to the 2nd Birmingham War Hospital on October 1st, 1915, the forearm wound was healing well; the

wound in the upper arm was suppurating. On November 13th a tiny fragment of cloth was removed with a probe, and later a piece of the casing of the bullet was removed with a fragment of cloth wrapped up in it, as shown in the drawing. Cultivations taken from this under anaërobic conditions failed to grow the tetanus bacillus.



The casing of the bullet is shown with a piece of cloth through it like a wick. The case entered base first.

On November 17th there was marked stiffness of the neck and back and inability to open the mouth freely. The sterno-mastoids and the muscles of the abdomen were rigid; he was sweating profusely. The temperature was 98° F.; 3,000 units of antitetanus serum were injected subcutaneously and repeated at first every six hours.

During the next few days the symptoms were very severe, difficulty in swallowing was pronounced, spasms were severe, sweating was profuse. An erythematous rash appeared twenty-four hours after the first injection; this was a source of much inconvenience to the patient, and he also experienced a good deal of discomfort in his joints on the tenth and following days. By November 25th a distinct improvement in the tetanus symptoms had occurred, and after this there was no real anxiety as to the patient's condition.

On December 4th, when the doses of serum had been reduced to two in twenty-four hours, a fresh lot of serum caused a recurrence of the rash. On December 8th all symptoms had disappeared. The records show that the temperature at its highest was 102° F., the quickest pulse-rate was 138, and the total quantity of serum given was 153,000 units.

CASE III.—*Tetanus with an Incubation of Forty Days, followed by Gas Gangrene Seventy-three Days after Injury and Forty-two Days after the Wound had Healed.*

Private S. was wounded in the right upper arm on September 25th, 1915, a flesh wound only. He was admitted to the 2nd Birmingham War Hospital on October 1st and transferred to a convalescent home on October 27th. The case paper states that the wound was then healed. There was no evidence that a prophylactic dose of antitetanus serum had been given.

On November 3rd he complained of pain in the shoulder and back, but was up and about. The next day he was confined to bed, as he complained of difficulty in swallowing and of stiffness of the lower jaw.

On November 8th he was sent back to the hospital. The note then made states that the reflexes generally were increased and ankle clonus was elicited; the muscles of the jaw, neck, back, and abdomen were very rigid; the tongue was occasionally bitten, the right arm was rigid, clonic spasms and slight opisthotonos occurred occasionally, sweating was profuse. Antitetanus serum (3,000 units) was given subcutaneously and repeated every six hours. Bromide and chloral were given by the mouth.

On November 10th the pulse was very rapid and weak; respirations 40. He had had no sleep until morphine gr. ¼ was given subcutaneously; this was followed by three hours' sleep. During the following days the records gave alternating accounts of slight improvement and relapses, but the patient was extremely ill and frequently delirious; the pulse varied from 100 to 160, the temperature from 100° to 104.5° F.

On November 18th the tetanus symptoms were much less marked and the amount of serum given was diminished and finally stopped on November 29th, when the patient had recovered from tetanus. He received altogether 189,500 units.

On November 30th there was dullness and crepitation at the base of the right lung, and on the same day a small abscess was discovered in the right thigh, from which a streptococcus was cultivated.

During the next days the patient improved somewhat, as did the physical signs in the lung, but on December 5th the temperature rose to nearly 104°, the pulse was 120, the tongue was brown and dry, and the patient was generally delirious. On December 6th the conditions remained practically the same, but it was noted that the base of the right lung was almost clear and that the scar of the wound was unaltered. On December 7th the note was, "Much the same, scar unchanged." On December 8th he was very delirious, at times unconscious, the scar was distended and livid, with brown discoloration around, the shoulder region was tympanitic. Free incisions let out stinking gas, but very little discharge; the tissues were quite insensitive when incised. The patient died early on December 9th.

For the clinical notes I have to thank Major Housman, R.A.M.C., Dr. Archer, and Dr. Foster.

Pathological Report.

The following pathological report is by Dr. C. J. Lewis, visiting pathologist to the hospital, to whom I am greatly indebted for the trouble he has taken in investigating the bacteriology of the case.

At the autopsy subcutaneous emphysema was found over the whole of the chest and neck, the lungs were densely black and emphysematous, the spleen was enlarged, black, and semi-gangrenous at the upper part.

On December 6th, 1915, a specimen of pus from the (right) thigh yielded *Streptococcus pyogenes* in pure culture.

At the *post-mortem* examination cultures were made from the spleen and from the gangrenous area near the right shoulder. The former yielded the streptococcus and the latter an anaërobic bacillus in addition to the streptococcus. This bacillus belonged to the type of organism described sometimes as *B. perfringens* and sometimes as *B. aërogenes capsulatus*. It was identified by its morphology and staining reactions, by the characters of its colonies, by the odour of its cultures, and by the rapid production of much gas.

Deferred or latent infections are always of great interest. They occur in infections of the most diverse kind, but are more common perhaps, or at all events more frequently recognized, in tubercle and are less common in connexion with organisms which develop quickly. In carcinoma we occasionally see something parallel to the development of latent infection. Many years, ten or more, after the excision of a carcinomatous breast and when the absolute cure of the patient seemed assured carcinoma may develop in the supraclavicular lymphatic glands. The explanation can only be that for a very long period cancerous emboli have existed in one or more of the glands, have been kept in check but not killed by the resistance of the surrounding tissue or by something circulating in the blood. Then, owing to some alteration in the patient's resistance, the embolus starts growing vigorously, and a fatal process of disease is established. What the circumstances are, what the particular factor is which activates the disease, whether in recognized bacillary infections or in malignant emboli, we are often unable to recognize, but sometimes we are provided with a striking illustration which almost resembles an experiment in a laboratory. The following is an example. A young girl suffered from typhoid fever, and experienced an osteitis of the lower end of one radius. This subsided and the patient worked regularly in a factory for five years, then went for a day in the country on a bank holiday, dressed without regard to the weather, and was, early in the day, soaked to the skin, and so remained until the end of the day. She was indisposed as the result of the chill thus sustained, and a few days later the forearm became painful and swollen. On admission to the General Hospital, five weeks after the incident above related, the lower part of the girl's forearm was found to be swollen and tender, the skin over the radius was red, and fluctuation could be detected. Pus was evacuated, a sequestrum the size of a horse-bean removed from the radius, and cultivation gave a pure culture of the *Bacillus typhosus*. The organism in this case appears to have been activated, after five years of quiescence, by changes in the general body tissues induced by chill, rather than by changes in the locality, for there was no evidence of local injury. It is a commoner experience to find that local damage activates the infection; this is especially true of injuries in the neighbourhood of joints, and may be true in some cases of tetanus in which operation, in the presence of the tetanus bacillus, hitherto not recognized by its clinical effects, has been followed by the development of the disease.[1]

To return to the cases I have related. It is certain that two of the patients received each a prophylactic dose of antitetanus serum; in the third case it is uncertain whether a similar precaution was taken. A point of great interest arises: May a prophylactic dose delay the onset of tetanus by directly influencing the growth of the infective organism and so reduce its virulence that it only shows its clinical effect under some special condition favouring more vigorous growth? Or alternatively, does the antitoxin given prophylactically neutralize the first formed toxin and so prevent the development of clinical symptoms, despite the growth of the infection, until all the antitoxin has been saturated? Some light may be thrown on these questions by scrutiny of the cases of delayed tetanus furnished to the War Office, especially if the statistical report is supplemented by experimental observation on animals.

The occurrence of gas gangrene seventy-three days after the infliction of a wound and forty-two days after the wound had healed, appears to be unique as far as I can learn by inquiry and such search as I have been able to make in current literature.

My impression is that the *Bacillus perfringens* was activated by the association with it of a streptococcus in

a subject exhausted by a severe attack of tetanus which, though recovered from, had made a deep impression on the patient.

REFERENCE.

1 Dean and Mouat, BRITISH MEDICAL JOURNAL, January 15th, 1916.

THE TREATMENT OF TETANUS,

WITH SPECIAL REFERENCE TO THE USE OF ANTITETANIC SERUM AND THE LOCAL TREATMENT OF THE WOUND.

BY

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As a result of his recent statistical analysis of 231 cases of tetanus Sir David Bruce[1] comes to the conclusion that the therapeutic value of the antitetanic serum is doubtful, although he still recommends its use.

The study of individual cases, however, may sometimes serve to supplement the statistical method, and a series of four cases of tetanus recently under my care are of interest, for in them the serum appeared to be of unmistakable value. In two the symptoms subsided under treatment by large doses of serum; on the reduction of the dose the symptoms reappeared with great violence, and on the renewal of large doses the symptoms once again subsided.

The four men were all wounded last autumn. None of them had received a prophylactic dose of serum.

CASE I.

Granulating shell wound of buttock; fragment of shell palpable beneath skin over sacrum. Incubation period, ten days. The symptoms were trismus, rigidity of neck and abdomen, painful spasms of legs. Respiration not affected; able to swallow fluids.

The patient stated that slight stiffness of the jaws had been present on the day preceding the beginning of serum treatment, which therefore commenced on the second day of the disease. From the second to sixth day 9,000 units were given daily; on the second, fourth, and sixth days 3,000 units of this dose were given intrathecally, the remainder being divided equally between the intravenous and subcutaneous routes.

Seventh day: Improved; able to open mouth; 5,000 units given subcutaneously. Eighth and ninth days: Improvement continued; serum omitted. Tenth day: Improvement maintained; 4,500 units given subcutaneously, with the aim of preventing relapse. This was insufficient for its purpose, for on the eleventh day a severe relapse occurred, with agonizing spasms of the legs; 3,000 units given intrathecally, 7,000 units intravenously. Twelfth day: Symptoms subsided; 7,500 units given subcutaneously. Recovery.

Duration of symptoms, twelve days; this period is reckoned up to the last day upon which slight tetanic spasms were present, although in this and the succeeding cases slight stiffness of the affected muscles persisted for several days longer.

CASE II.

Bullet wound of thorax; fractured ribs; small effusion into left pleura, regarded as sterile haemothorax. Incubation period, twelve days. Trismus; severe respiratory spasms with deep cyanosis; deglutition impossible.

For the first five days 9,000 to 12,000 units were given each day, part subcutaneously and part intravenously; for the first three days 3,000 units of this dose were given intrathecally. Sixth day: Marked improvement; spasms few and slight; deglutition easy; 7,500 units given subcutaneously. Seventh day: Improvement continued; serum omitted. Eighth day: 5,000 units given subcutaneously to prevent relapse. Ninth day: Severe relapse; 10,000 units given intravenously, 6,000 subcutaneously. Tenth day: Considerable improvement; spasms less frequent; 7,500 units given intravenously and repeated in afternoon. Eleventh day: Large haemorrhage from rectum, and death.

Duration of symptoms, eleven days.

Post-mortem Examination.—A superficial erosion in rectum; lower gut packed with scybala, although an enema had been given on alternate days. Small septic effusion in left pleura.

CASE III.

Shell wound of thigh. Two days after the injury the wound had been freely incised for gaseous cellulitis. At the time of the onset of tetanus large sloughs of muscle were in process of separation by granulation.

Symptoms of tetanus occurred ten days after the date of original wound. Trismus and backward curvature of spine; deglutition and respiration unaffected. The patient stated that slight stiffness of jaws had been present on the day preceding the initiation of serum treatment, which thus commenced on the second day of disease.

Second day: 3,000 units intrathecally, 3,000 intravenously, 3,000 subcutaneously. Third and fourth days: 6,000 units intravenously, 3,000 units subcutaneously. Fifth day: No definite spasms, but occasional twitchings; 4,000 units intravenously, 2,000 units subcutaneously. This dose repeated on sixth day. Transferred to England, having been free from tetanic symptoms for twenty days. Duration of symptoms, six days.

The muscular sloughs were allowed to separate by granulation.

CASE IV.

Granulating shell wound of thigh. Incubation period, nine days. Trismus, rigidity of neck, painful spasms of wounded leg, tongue frequently bitten. Respiration and deglutition unaffected.

First day: 3,000 units given intrathecally, 4,000 units intravenously, 2,000 units subcutaneously. Second to eighth days: From 7,500 to 10,000 units given daily, chiefly intravenously; on the fourth day 3,000 units of this dose were given intrathecally. Ninth day: Spasms absent; serum omitted. Tenth day: Slight spasms present; 4,000 units intravenously, 1,000 subcutaneously. Eleventh to thirteenth days: Spasms absent, serum omitted. Fourteenth day: Very slight spasms; 4,500 units subcutaneously. Transferred to England, having been free from spasms sixteen days. Duration of symptoms, fourteen days.

In Cases I and II formidable symptoms subsided under large doses of serum, reappeared when the doses were diminished, and again subsided when the large doses were repeated; in each case the relapse occurred on the day following the injection of about 5,000 units subcutaneously. Hence it appears probable that small doses may fail where large ones succeed. Although Case II ultimately died from complications, the effect of the serum in influencing grave tetanic symptoms was marked. The cause of the rectal haemorrhage is not clear; it would be of interest to learn whether purpuric symptoms have followed large doses of serum in other cases.

The value of intrathecal injection was shown in the relapse of Case I; after the injection, the agonizing spasms of the legs completely subsided, and did not recur. Possibly the intrathecal route is specially valuable when the wound is in the lower part of the body and the spasms localized to the lower limbs, for by this route the serum is brought into immediate relation with the affected lower part of the cord.

Daily Dose.

The effectual daily dose would appear to be about 10,000 or 12,000 units; this may be given twice a day in critical cases. The major portion of this dose should be given intravenously; subcutaneous injections being also used to maintain the effect. Intrathecal injections should be given daily, or at such intervals as the symptoms demand. The dosage must be reduced gradually, in order to avert relapse.

It is worth noting that three of the above cases exhibited a characteristic narrowing of the palpebral fissure, a symptom which I have also observed in several other cases of the disease. This is probably due to a slight continuous contraction of the orbicularis, although the drooping upper lids may sometimes resemble bilateral paretic ptosis. It is more persistent than the risus sardonicus and occurs earlier in the disease, and may therefore be of diagnostic value.

Local Treatment of the Wound.

All will agree as to the desirability of the vigorous treatment of soiled wounds as a preventive of tetanus; but when once the disease has declared itself, I consider that operative surgical interference with the surface of the wound, although recommended by several authorities, is a proceeding of considerable danger. This view is based on theoretical considerations, and on the study of eleven cases during the war.

Tetanus usually shows itself after an interval of a week or more from the time of the injury. By this time there will have been formed the protective inflammatory barrier, the function of which is to check absorption from the surface of the wound. Any active surgical treatment, such as scraping, incisions for drainage, or the removal of sloughs, is likely to make breaches in the inflammatory barrier, and to expose the tissues to the access of the tetanus toxin; and this will hold good whether the toxin gains entrance by way of the nerves, the circulation, or the lymphatics.

The following case illustrates this point:

A patient with septic compound fracture of the leg was well on the road to recovery from a severe attack of tetanus; a

simple incision was made for the evacuation of a collection of pus and the removal of a fragment of dead bone. Although a precautionary dose of serum had been given, the operation was followed within eight hours by a violent relapse of the tetanus.

It is probable that the relapse was not due to the shock of the operation, but to the exposure of a fresh absorbent surface, for I have not observed any similar recrudescence of tetanic symptoms following the administration of an anaesthetic for such purposes as lumbar puncture or the dressing of a wound.

In another case the patient had been wounded in the back; six days after the wound an operation was performed for the removal of a missile lying upon the lamina of the first lumbar vertebra. For a few hours before the operation the patient had complained of severe pain in the wounded portion of the back; this was not at the time recognized as due to the onset of tetanus, although subsequent events showed that the pain had probably been due to that cause, for it increased after the operation, and in six hours was accompanied by trismus. Death from rapidly developing tetanus took place within sixteen hours of the operation.

MacConkey[2] has recently collected several instances of operations upon wounds followed after a short interval by the development of tetanus in patients who had previously shown no signs of the disease. It is probable that these cases illustrate the danger of making breaches in the inflammatory barrier.

That the policy of non-interference with the wound may be followed without detriment to the patient is proved by Case I and Case III above. A fragment of shell in one case and large muscular sloughs in the other were left undisturbed; both patients recovered. In each case the belief was justified that it was safer to trust to the protective power of the inflammatory zone than to risk the exposure of a fresh absorbent surface.

While avoiding injury to the granulation tissue, every effort should be made by gentle means towards the removal of débris and the cleaning of the wound; for this purpose irrigation with hydrogen peroxide, followed by irrigation with the hypochlorite of soda solution, may be employed.

The objections to interfering with the infected surface of the wound do not apply to amputation above the site of injury. In cases of tetanus associated with septic compound fracture the patient is exposed to danger from the sepsis as well as from the tetanus, owing to the impossibility of preventing movements of the fractured bones; I have observed two such cases in which the patient survived the tetanus but ultimately died from septicaemia. In cases of this nature early amputation probably affords the best chance of recovery; this course was followed successfully in a case under my care. Antitetanic serum was injected into the nerve trunks exposed in the stump at the time of operation.

In an account of the German experiences of tetanus, Pribram[3] recommends radical excision of the wound. Owing, however, to the extensive nature of the injuries usually associated with tetanus during the present war, complete excision of the wound would almost invariably be quite impracticable; any attempt to perform it would be necessarily incomplete, and would probably do more harm than good. The case-mortality of tetanus amongst the Germans appears to have been very high.[4]

CONCLUSION.

When tetanus has declared itself, operative surgical interference with the infected surface of the wound is dangerous, and should be a matter for grave consideration; it is preferable to imitate nature's methods—namely, to promote the formation of granulation tissue, and simultaneously to reinforce the patient's production of antitoxin by the injection of large doses of antitetanic serum.

REFERENCES.

[1] Bruce, BRITISH MEDICAL JOURNAL, October 23rd, 1915. [2] MacConkey, ibid., December 11th, 1915. [3] German Experiences of Tetanus, ibid., December 18th, 1915. [4] German Surgical Experiences, Kümmell, ibid., July 17th, 1915.

IT is reported from Sweden that the actual delivery of the Nobel prize in chemistry for 1914, awarded to Professor Theodore W. Richards of Harvard University, together with the other Nobel prizes for 1914 and 1915, will be postponed until June 1st next. The prize winners are invited to go to Sweden in person to receive their prizes and to give their Nobel lectures.

VISUAL NEUROSES OF MINERS IN THEIR RELATION TO MILITARY SERVICE.

BY

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THE visual defects of miners have been the subject of careful investigation by members of the profession, and miner's nystagmus in particular has received close attention, and the monograph on this subject by Dr. T. Lister Llewellyn, entitled *Miner's Nystagmus, its Causes and Prevention*, may be thought to have said the last word on this peculiar affection. It may, however, be of interest to record some of the cases which have been met with recently among miners coming from the counties of Northumberland, Durham, and Yorkshire, who have found their way into the army. There may also be some advantage in noting the persistence and, in some cases, the aggravation of these defects in men removed far from the scene of their former work and employed entirely above ground. I had not previously had the opportunity of noting cases of this disease, and therefore approached the subject with some freshness. I have purposely abstained from using the term "miner's nystagmus" for reasons which will be stated, but nevertheless the series of cases given are, in my opinion, examples of the affection which usually bears this name.

It is obvious that the cases quoted are too few to be of themselves of great value, but the fact that they are corroborative of cases quoted by Dr. Llewellyn seems to indicate their similarity to the condition which he describes.

1. In the first place, there can be little doubt that the group of associated symptoms which are present in what is usually known as "miner's nystagmus" constitute a distinct "disease."

2. On the other hand, the name seems to be unfortunate, seeing that the nystagmus is at most only one symptom out of a group which may be absent even when the "disease" is present in a marked form.

3. The symptoms noted in the series of cases given below correspond very closely with those described on pp. 1 and 2 of Dr. Llewellyn's monograph, and it may be convenient to refer to these seriatim, taking them in the order of apparent importance.

(*a*) *Defect of Vision.*

This is variable in different cases, and probably is due to a variety of causes, but it has usually been the chief reason which has led to the man in question being sent for examination. There is usually some error of refraction present, but this is insufficient to account for the defective vision, and it will be seen that some of the cases were hypermetropic, some myopic, and some astigmatic in different degrees. In no case was any abnormality of the fundus detected to which any of the disturbance of vision could be attributed, but it was not possible to make an ophthalmoscopic examination in the cases where there was marked photophobia.

(*b*) *Temporary Giddiness.*

Next to the visual disability, the occurrence of more or less pronounced attacks of giddiness was a reason for the cases coming under observation. In two instances men complained that they found it dangerous to be on horseback, and one man came into hospital suffering from bruises because he had fallen from his horse and been dragged along by it. Case I, which was much the worst of the series, used to have attacks of giddiness, in which he would often have fallen if he had not been held up by attendants in hospital. Others would simply complain of feeling "dizzy," often in the early morning; in no instance could it be proved that there was any absolute loss of consciousness.

(*c*) *Photophobia.*

Intolerance of light was present in some measure in practically every case, and this symptom may be responsible for the blinking of the eyelid in some cases, the drooping of the lids in others, and the difficulty which was generally experienced in looking upwards. Judging from the occurrence of this symptom in other forms of disease

affecting the eye, it seems most likely that it is due in this instance to some irritability of the retina, for it is suggestive of the photophobia met with in albinos, or in cases where the pupils are widely dilated in a bright light. There was never any corneal trouble present, and only in two cases marked conjunctivitis, but this was not sufficient to explain the photophobia.

(d) Headache.

In most cases there was a complaint of very frequent pain, chiefly in the temples, either at night or in the early morning. Most of them associated this with injuries to the head which they had received in the pit. While there may be some ground for this, the occurrence of the headache, together with other symptoms, was suggestive of that form of headache often met with in cases of functional nerve disorders.

(e) Perverted Visual Impressions.

Under this heading may be mentioned the very general complaint of various apparent movements of lights, referred to by some as "dancing lights," "glittering lights," "dazzling lights," and so forth. It seems that these subjective impressions have been directly associated by most observers with the occurrence of the special form of oscillation of the eyeballs which constitutes the nystagmus. It is very doubtful whether this is so. In other forms of nystagmus there does not seem to be any occurrence of similar visual impressions, and the disorder is probably due to other causes. However this may be, the fact remains that the meeting of lights shining out of darkness, whether they are lamps in a pit or gas lamps on a dark road, seems to set up peculiar disturbances of vision which greatly distress the patient and interfere with many occupations. The symptom which has been referred to as "night blindness" is hardly a true "night blindness," but darkness seems to accentuate most of the symptoms, and it is a strange anomaly that "fear of the light" and "fear of the dark" should be present in the same cases, but so it is.

(f) The Mental Factor.

No one can have watched a number of these cases without recognizing the very great importance of the mental factor. In spite of the fact that the cases were not spoken of in the patients' hearing as "miner's nystagmus," and that no diagnosis was put upon their diet sheets, yet all seemed to be introspective and oppressed by their condition. In most cases detention in hospital seemed to have a depressing rather than a helpful influence, and the graver cases tended to grow worse in spite of change of treatment. Bromides, stomachics, tonics were tried in succession, but all without benefit. Probably the different cases reacted unfavourably upon one another, and yet it was difficult to keep them apart.

(g) Nystagmus.

In those cases which have for months been working above ground this symptom was either not present or was at least very difficult to detect. There is no suggestion that the symptom is not as prominent as has been described in recent cases, but it is significant that in the circumstances in which these men were living the symptom seemed to have disappeared. Some may on this ground question the diagnosis, but it is not likely that any one who has read Llewellyn's book will be inclined to do so.

4. The question now arises as to the effect of military service upon this affection. There seems to be no room for doubt that it is a serious mistake for men who have any tendency to the complaint to be subjected to the arduous strain of military service, which not only involves exertion of all the powers of body and mind, but particularly of the eyesight, and it may be worth while to bear this in mind in examining recruits for the army from the mining community.

5. There is, however, another question of even greater importance, and that is the relation of the disease to military efficiency. From the insidious character of the symptoms serious results may follow from the inclusion in the army of men who may become quickly incapacitated. When it is realized that the vision may without obvious cause be seriously impaired, that vision at night time may be reduced to a minimum, and that attacks of giddiness may come on at any time, it will be believed that the presence of such a man might prove to be a source of serious danger to his unit if any dependence was placed upon him.

6. In conclusion, it will be seen that no attempt has been made to throw light on the causation of the disease, as this has been very fully worked out, and as the cases given were those which were seen apart from the surroundings in which the disability was acquired; but I desire to express very strongly the view that this affection, which is of such vast importance to miners, and which seriously affects the military efficiency of those who suffer from it, needs to be more carefully studied by the neurologist rather than by the ophthalmologist. It is true that the avenue through which the nervous system is deranged is the eye and that vision is disturbed by it, but it seems clear that the "disease" is a general nervous ailment and should be studied as such, and that too great prominence should not be given to the nystagmus, which is only one symptom in the case. If this course were followed it is possible that better results might be obtained by treatment, which, it will be admitted, is very unsatisfactory in the severe cases. Only one comment may be made here under this head, and that is the possible benefit of suggestion, particularly in view of the great importance of the mental factor.

In the following list of cases it is only possible to state the age of those who were in-patients, but the others were all men of military age. The result of ophthalmoscopic examination is not given, but this was carried out where possible without any abnormal appearances being detected.

CASE I.

A driver, R.F.A., aged 33, was admitted to hospital on June 11th, 1915, on account of defective sight and staggering gait. The following symptoms have been specially noted during two months in hospital, and have gradually increased in severity. V. = R. $\frac{1}{60}$; L. bare perception of light. He can only get about with great difficulty, chiefly by feeling his way. The staggering is probably mainly due to inability to see clearly, but there is also some stiffness of limbs, and there is a kind of spasm on tapping over the patellar tendon. There is marked photophobia, which makes it exceedingly difficult to examine him. Much blinking of eyelids, irregular movements of eyeballs, and apparent inability to fix upon any point, but no definite nystagmus. He says that the symptoms are worse at night, and that then, especially, things seem to dance before his eyes. He complains of almost constant pains in the temples and the occipital region. He sleeps badly, is much depressed, and has nervous attacks, especially at night, in which he does not seem to lose consciousness, but is much agitated.

Previous History.—He stated that he had worked in a pit since the age of 11, and was always short-sighted. He ascribed his trouble to various accidents: Eight years ago, when he was buried in a mine accident; seven years ago, when he was kicked by a horse, and had an injury to the skull as well as breaking his jaw. The symptoms have been worse for the past three years.

Family History.—His father is said to have been "short-sighted." He has four brothers, three of whom are said to be "short-sighted" and two affected similarly to patient. They all work in mines.

CASE II.

A private in an infantry regiment, aged 34, was admitted to hospital on July 1st, 1915. He had previously been seen as an out-patient, when his vision was $\frac{1}{60}$ in each eye. It is not easy to say how far the defective vision was due to any real inability to see, or whether it was occasioned by the well-marked photophobia which made it difficult for the patient to look at any object for a sufficiently long time. There was some fine oscillation of the eyeballs in a lateral direction when the lids were held open, but no rotatory movement was detected. The drooping of the lids, as in Case I, corresponded with the illustrations given by Dr. Llewellyn as characteristic of this disease. He has some conjunctival congestion, but no staggering gait or severe headaches.

Previous History.—He stated that he started work in the pits at the age of 12, and that at the age of 15 he had a bad fall, hurting his head, and has never been well since. He ascribed his recent failure of sight to an attack of discharge from the eyes, from which he said that his wife and four children had suffered.

Family History.—Father and mother are said to have weak eyes, as also four brothers who are working in the pits.

CASE III.

A gunner in the R.F.A., aged 28, was admitted to hospital on July 9th, as he had fallen from his horse, so he stated, on account of an attack of giddiness. He had twitching of the lids and slight photophobia, but no nystagmus. The symptoms were worse in the evenings, when he suffered from severe pains in the temples. He stated that whenever he got upon a horse objects seemed to be dancing about in front of his eyes. V. = R. $\frac{6}{24}$, L. $\frac{6}{36}$; not improved by glasses.

Previous History.—He had suffered for six years from somewhat similar symptoms.

CASE IV.

A driver in the A.S.C., seen as an out-patient on July 9th, 1915, complained of defective vision, which, however, was due to myopia, as follows: V. = R. $\frac{6}{9}$ c −3 D. = $\frac{6}{6}$ partly. L. $\frac{6}{9}$ partly c −2.25 D. = $\frac{6}{6}$ partly. With both eyes $\frac{6}{6}$. At the same time he complained of difficulty as a driver, as he felt unsteady and wished to be transferred to an infantry regiment. There was no sign of nystagmus at time of examination.

Previous History.—He stated that he had always had bad sight, that a few years ago he had suffered from nystagmus, that he was affected by the lights in the pit, and that he found difficulty in staring at lights at the present time. He said that he had been at various times in the army, but had twice been discharged on account of bad sight (probably myopia).

Family History.—Father's sight good; mother's sight weak; eight sisters and one brother have good sight; one brother is said to have suffered in the same way as the patient.

CASE V.

A private in an infantry regiment attended as an out-patient for test of vision on July 14th, 1915. V = R. $\frac{6}{18}$, and L. amblyopic; hypermetropic with some astigmatism; not improved by glasses to any appreciable extent. He complained of pain in the head, and said that he could not bear a strong light.

Previous History.—He stated that he had had weak eyes all his life, that he had had an accident to the head as a child, to which he ascribes the failure of the left eye; that two years ago he had inflammation in both eyes, and that since then he has noticed dancing or flickering lights when working in the mine. He was better after joining the army until he started musketry practice.

CASE VI.

A private in an infantry regiment came up on July 15th, 1915, as an out-patient for examination of eyes.

V. = R. $\frac{6}{24}$ c + 2.5 D. cyl. ax. ⟍50° = $\frac{6}{18}$ ptly.
L. $\frac{6}{36}$ c + 2 D. cyl. ax. | vert. = $\frac{6}{18}$ ptly.

Previous History.—He had been troubled with his eyes for twelve months, especially in looking at lights in the pit, and at night when above ground.

CASE VII.

A private in an infantry regiment was seen on July 17th, 1915, on account of failure at musketry practice.

V = R. $\frac{6}{36}$ ptly. c − 3 D. cyl. ax. — hor. = $\frac{6}{6}$.
L. $\frac{6}{24}$ ptly. c + 2 D. cyl. ax. | vert. = $\frac{6}{18}$.

There was some slight sign of oscillation of eyeballs, and it was difficult to get him to look upwards.

Previous History.—He stated that he had suffered from miner's nystagmus, which he believed was caused by knocks over the eyes. He complained of the glittering of lights in the dark and of the moving of things before his eyes, especially if reading a paper.

CASE VIII.

A private in an infantry regiment, aged 33, was admitted July 9th, 1915, on account of conjunctivitis.

V. was at first $\frac{6}{18}$ in both, improved in hospital so that on August 18th it was

V. = R. $\frac{6}{12}$ c − 1 D. = $\frac{6}{6}$. L. $\frac{6}{12}$ c − 1 D. = $\frac{6}{6}$.

There was much blinking of eyes and complaint of pains in the temples, and occasional giddiness, causing a fall one evening.

Previous History.—He stated that he had had many knocks on the head, some of which had stunned him. He seems to have had conjunctivitis at the age of 21. For a long time he had been dazzled by lights in the pit, and when he passed a lamp in the street at night time he had to shade his eyes; he said that he often turns dizzy.

CASE IX.

A private in an infantry regiment, seen on July 26th, 1915, said that he had had nystagmus five years previously, when he was off work for six weeks.

V. = R. and L. $\frac{6}{24}$, improved by + glasses with a weak cylinder to $\frac{6}{12}$.

CASE X.

A private in an infantry regiment, seen on August 5th, 1915, stated that he had suffered from miner's nystagmus two years previously, and was obliged to leave the pits. V. = R. $\frac{6}{24}$, not improved by glasses; L., amblyopic. Refraction hypermetropic.

THE fortieth annual report of the Boston Medical Library, presented on January 11th, shows that the war has caused a great falling off in the number of books and journals received. During 1915 seventy-six foreign periodicals had suspended publication, at least for a time, while others had appeared at very infrequent and irregular intervals. The number of volumes added during the year was 3,688, making a total of 89,963 in the library. In 1876, the year after its foundation, it possessed only 4,488 volumes. It is now the fourth in size among the medical libraries of the United States, being exceeded only by the Surgeon-General's Library at Washington, and those of the College of Physicians of Philadelphia and the New York Academy of Medicine.

A METHOD OF TREATMENT FOR CONJUNCTIVITIS.

BY

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THE treatment of conjunctivitis is an important problem for doctors in the region of the firing line. The ordinary treatment is sometimes ineffective and often slow, with the result that many valuable men in excellent general health are rendered incapable of service for considerable periods owing to the state of their eyes. What is wanted is a treatment which will be at once more effective and more rapid, and it is also necessary that it should be capable of ready application to large numbers of men, and under circumstances in which the facilities for applying even the most simple remedies may perhaps not be very great.

Some of the cases of conjunctivitis are traumatic in origin, others are dependent upon and secondary to some other diseased condition, but most of the cases appear to be simple bacterial infections of the conjunctiva, and so should be susceptible to treatment by ordinary recognized antibacterial methods.

Experience has shown that immunization procedures are peculiarly applicable to many eye inflammations. Gonococcal, tuberculous, and sometimes streptococcal infections of the organ often give most excellent results when treated with the corresponding vaccine. But simple uncomplicated conjunctivitis is apparently seldom due to any of these organisms, and its bacteriology is so inconstant that to apply vaccine therapy would hardly be practicable under war conditions. It is, however, safe to say that any conjunctivitis cases in which styes are present as a complication should certainly be treated with staphylococcus vaccine.

The value of an antiseptic would appear to depend largely, if not altogether, upon the histological position of the invading bacterial army. When the bacteria are superficially disposed, an antiseptic is the most obvious agent by which they may be destroyed. In this process the tissues themselves will suffer injury and death, but such cellular losses will be replaced from the practically illimitable resources of the body, while the superficially placed bacteria have no such reserves to draw upon. When, however, bacteria have penetrated more deeply and have established for themselves in the tissue labyrinth bases where no antiseptic can reach, they can keep up a continuous stream of recruits which, in a war of antiseptic attrition, will be as proof against extermination as the cells of the organ they have invaded. In such a case antiseptics are not only useless but probably harmful, for by devitalizing the tissues they hinder the physiological forces from trying to accomplish the bactericidal effect which the antiseptic itself has no hope of accomplishing.

In conjunctivitis the inflammation is placed about as superficially as it is possible for any inflammation to be. It is the condition above all others in which we might expect an efficient antiseptic to produce good results. Now the substances used for the treatment of conjunctivitis are, as a rule, more distinguished for their astringent than for their antiseptic properties. We thought it would be interesting, and probably profitable, to try the effect of a remedy in which the antiseptic prevailed over any other action, and after some deliberation we chose eusol solution as the reagent best suited to carry out the idea, for the following reasons: (1) It is a most powerful antiseptic; (2) it seems strangely non-irritating to the tissues, almost as though it might imitate faintly with regard to bacteria the action of salvarsan with regard to a more developed form of microbe life; (3) it has apparently already given good results in the hands of some reliable workers in the field of general surgery, though, so far as we know, it has not yet been used in infections of the eye.

The investigation was carried out in the following manner:

Acting on advice kindly furnished by Professor Lorrain Smith, we commenced with a solution of eusol ten times more dilute than that used in the treatment of wounds. It speedily appeared, however, that this was too weak and that a solution about five times more dilute than the normal strength used for wounds gave the optimum effect in the treatment of conjunctivitis. Every second case of conjunctivitis was treated by irrigating the conjunctival sac freely three times a day with eusol; the other cases were treated with boric acid and zinc sulphate solution, as being probably the commonest of routine methods.

We took the cases absolutely in the order that they happened to arrive from field ambulances. The only thing that was done in the way of selection was to exclude from the experimental group those cases in which any complications coexisted with the inflammation of the conjunctiva. Cases of blepharitis, corneal ulceration, trichiasis, entropion, and ectropion seemed to us to present incalculable elements the inclusion of which would be likely to lead to ambiguous and uncertain conclusions.

One hundred cases were treated in this comparative manner. Of these 100 cases, the 50 treated with eusol took an aggregate time of 303 days to cure. The cases treated by boric acid and zinc took 448 days before they were fit for duty.

The employment of eusol therefore resulted in the saving of many days in the treatment, the average time required for a cure with eusol being 6.06 days, as against the average time of 8.96 days required to get the same result with boric acid and zinc treatment.

It was further apparent as the result of our work that, apart from any gain in time, eusol might yet be a very useful alternative measure for the treatment of conjunctivitis, for in six cases it succeeded in effecting a rapid cure of the disease where boric acid and zinc had proved unsatisfactory.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTUSSUSCEPTION OF THE SMALL INTESTINE DUE TO FIBROMYOMA: EXCISION: RECOVERY.

THE following case appears worthy of record for several reasons. Fibromyoma of the small intestine is rare, especially as the cause of acute following chronic intestinal obstruction in an elderly patient.

A thin lady, aged 50, had been failing in health and having colicky pains and indigestion on and off for six months. She got suddenly very much worse on December 7th, 1915. She vomited frequently, and on December 12th brought up bilious and brown offensive material. Enemata had at first brought away large masses of scybala, but without much relief. The patient had been more or less constipated for years, but she had been much worse of late. Dr. Clowes saw several coils of small intestine across the middle of the abdomen, and felt a hard lump varying in consistency to the left of the umbilicus. He did not think this was faecal, as it persisted after the enemata. His diagnosis was obstruction of the small intestine, probably due to growth. There was no blood in the results of the enemata, but some slime came away with one of them. When I saw her at Colchester, on the evening of December 13th, she looked exhausted and shrunken, but not very ill.

Operation.

Dr. Worts gave the anaesthetic, and Dr. Clowes assisted. A long incision was made through the middle and inner third of the right rectus. I at once felt an intussusception in the small intestine, probably about the middle of the ileum. It was about 8 in. long, and its apex was hard, and thought to consist of a polyp or carcinoma. Very gradually and gently the intussusception was reduced. As the last bit was released a depression was seen on the wall of the bowel, which indicated the attachment of the growth. The latter could now be well felt and moved inside the bowel. It was polypoid, but with a broad attachment, and was 2½ in. long and 1 in. in diameter. The intestine at and just below the growth was grey and thin; therefore I resected about 6 in. of it with the growth, and joined up end to end with two continuous sutures of fine black thread. The intestine above was greatly hypertrophied, and also considerably dilated, probably to twice the natural size. The abdomen was closed in layers with catgut and mass salmon-gut sutures in the usual way. The operation lasted about forty-five minutes. There was no shock at the end. She was given a rectal saline with 30 grains of aspirin immediately afterwards.

A letter from Dr. Clowes, dated January 30th, 1916, stated that the patient had done very well.

A report from the Clinical Research Association stated that "the tumour is composed of bundles of smooth muscle with a very small amount of fibrous stroma. It is not malignant, and has the general structure of a fibromyoma."

Recovery after resection at the end of six days' complete obstruction of the small intestine is uncommon. Resection seemed to be the best treatment, for even if the innocent nature of the tumour had been certain at the time of the operation, excision of the polyp would have involved cutting into the damaged bowel at its mesenteric border. It seemed better to remove the seriously damaged part. The question of drainage of the distended bowel above arose, but in view of the high position of the obstruction this was not thought necessary.

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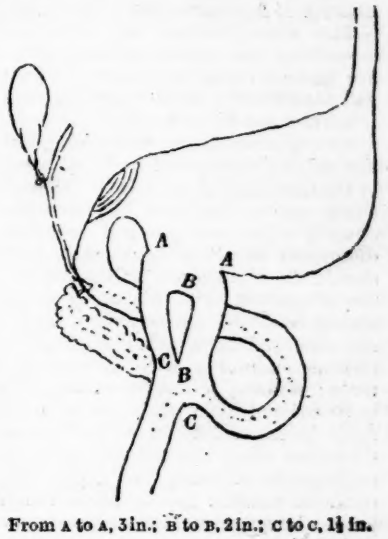
DUODENAL AND JEJUNAL ULCERS.

SIR J. BLAND-SUTTON says (February 19th, p. 272) that surgery has evolved a new ulcer in the jejunum. He says also that "with an unobstructed pylorus gastro-jejunostomy cannot be relied on to cure a chronic duodenal ulcer . . . as it exposes patients to the discomforts and risks of regurgitant vomiting and jejunal ulcers . . ." I hold that all ulcers in that region after gastro-jejunostomy are due simply to faulty technique. I fail to see the necessity for pylorectomy in duodenal or pyloric ulcers.



From A to A, 3 in.; B to B, 2 in.; C to C, 1½ in.

I have shown in my publications in the BRITISH MEDICAL JOURNAL of April 25th and July 25th, 1914, what is, in my opinion, the best operation for duodenal and pyloric ulcers—namely, a posterior gastro-jejunostomy with an entero-anastomosis in every case, done at the same time.

I have had a large experience in this operation, and have had no deaths and no jejunal ulcers occurring afterwards, and no unpleasant symptoms of any kind whatever.

The diagram shows the completed operation referred to.

London. G. GORE GILLON, Lt.-Col. R.A.M.C.

PROCIDENTIA UTERI IN A NULLIPARA.

IN the JOURNAL of February 5th, p. 218, in a letter on "Dystocia due to Constricted Os," Dr. W. E. Fothergill of Manchester says that "nulliparous women do not have procidentia uteri (the final or complete stage of prolapsus uteri)." Three years ago I met with a case of complete prolapsus uteri in a woman aged 20, unquestionably a nullipara. The condition had existed for about five months, and was accidentally discovered by her mother, who brought her to me. The vulvar ring had contracted behind the extruded corpus uteri, and an anaesthetic was needed before reduction could be effected. Here there was no overgrowth of the cervix. Cervix and body were both normal in size. It was a case of simple uncomplicated procidentia uteri in a nullipara. She was the daughter of a small farmer, and the condition was attributed by her mother to the carrying of heavy loads of farm produce. A pessary was put in; it was removed a few months afterwards, and, so far as I know, the ailment has not recurred.

Ballinalee, Edgeworthstown. J. F. KEENAN, M.B.

Reviews.

ROENTGEN DIAGNOSIS IN GASTRO-INTESTINAL DISEASE.

GEORGE and LEONARD, in their book entitled *The Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal Tract*,[1] have relied largely on 368 illustrations to demonstrate the conclusions they have arrived at in diagnosing these conditions. The proposition they advance, put shortly, is that in pathological gastro-intestinal conditions the clinical evidence is so superficial and inaccurate that it can be, and ought to be, put on one side, and the diagnosis made on the *x*-ray findings alone. The case they make out is very striking. The construction of the book is interesting. It is divided into nine sections; each is prefaced by a very short summary of the authors' technique and conclusions, and this is followed by a large series of radiographs—fine ones, and admirably reproduced—demonstrating the points on which diagnostic reliance is placed. No clinical findings and no history are given—merely the age and sex, the manner in which the radiograph was made, the Roentgen diagnosis (pointing out the variations from normal on which it was based), and the operative findings. As in by far the larger proportion of the cases an operation followed on the diagnosis, this manner of demonstration is very convincing.

The nine sections are arranged as follows: After describing the normal stomach, the conditions dealt with are gastric ulcer, gastric new growth, the duodenum, the gall bladder, the small intestine, the appendix, the large intestine, and diverticulitis.

An important point, on which great stress is laid, is that the indirect method of arriving at *x*-ray conclusions (that of the Continental school of workers, in which the standard thick meal is used, and in which the roentgenoscopic and clinical signs are grouped together for the purpose of diagnosis) is altogether wrong in principle. The meal should be of bismuth subcarbonate and buttermilk, and the diagnosis, without any reference to anything else, should be based entirely upon the *x*-ray appearances seen and recorded on a number of plates. Perhaps the most striking chapter is, with its illustrations, that on duodenal ulcer; without accepting all that the authors claim, it is quite evident from what is shown, that this direct method, as it is termed, gives a far greater number of correct diagnoses than the indirect, or inferential, method. The radiographs showing the departures from normal in the duodenal shadow due to ulcers, the presence of which was proved by subsequent operation, are very convincing.

Some slight criticism we must make. In the chapter on the normal stomach several plates are described as "normal stomach: dilatation and ptosis"; to describe as normal a stomach showing these conditions is misleading. Under the head of Roentgen conclusions we find "hypernephroma causing a pressure effect on a normal stomach"; how can the diagnosis of hypernephroma be a Roentgen conclusion? A further error is to describe one plate as showing the pressure effects on the "greater curvature" of an ascending colon. Taken as a whole the book is the best which has yet appeared on the subjects it deals with, and is one which every *x*-ray worker should study carefully.

TREATMENT OF INFECTIOUS FEVERS.

IN his exhaustive monograph on *The Treatment of Acute Infectious Diseases*[2] Dr. MEARA of New York goes very thoroughly into the nursing, dieting, and therapeutics of thirty three of the commonest infectious fevers, excluding tuberculosis and including a few diseases, such as dengue, leprosy, and psittacosis, that are rare in this country. The text is clearly written and admirably arranged; at the end of each chapter a headline summary of the procedures advised is given for convenience of reference. In the treatment of rheumatic fever Dr. Meara relies upon the exhibition of large doses of sodium salicylate combined with twice as much sodium bicarbonate, and he describes the drug, introduced by Maclagan in 1874, as a boon. In the treatment of whooping-cough he gives antipyrin the first place, belladonna the second. In the treatment of laryngeal diphtheria he includes a description of the processes of intubation and detubation, written by Dr. M. C. Hill, but for tracheotomy refers his readers to surgical textbooks. Dr. Meara writes exhaustively upon the subjects with which he deals, and is well up to date. His book should be consulted by all medical men who are in doubt as to the varieties of treatment that may be employed in the management of cases of the acute infectious fevers and their complications.

An excellent handbook of *Fevers*[3] has been published by Dr. J. CAMPBELL MCCLURE for the use of students and general practitioners of medicine. First and foremost, it is a practical book; pathology, epidemiology, and bacteriology do not bulk very large in its pages. Twenty-five fevers are included as likely to be met with by practitioners in the British Isles; only seven of them are characteristically diseases of tropical or subtropical regions. Plenty of space is given to diet and treatment, a feature for which all who are responsible for the management of fevers will be grateful to the author. Tuberculosis of the lungs is included. Dr. McClure's book may be warmly recommended to all students and practitioners of medicine.

HOSPITAL CONSTRUCTION AND ADMINISTRATION.

THE second edition of Dr. MACKINTOSH'S admirable book on the *Construction, Equipment, and Management of a General Hospital*[4] has been revised, and enlarged by the addition of a chapter by Mr. John Wilson, architectural inspector of the Local Government Board for Scotland, on the construction of semi-permanent hospitals such as are called for by the war. The author, as is well known, has the Glasgow Western Infirmary to his credit. His book is an ordered exposition of the latest principles in hospital design to which experience has led him. It is therefore to a large extent an account of buildings to be found at this infirmary. Dr. Mackintosh would build a modern general hospital in blocks and units. The book begins with an account of the gatehouse or admission block for all the patients who come to the hospital, with its casualty rooms, emergency wards, suite of rooms for the casualty officers who should be always on the spot, and numerous other offices. The out-patient unit, described in a later chapter as a singularly complete and sumptuous department, is quite distinct; here the patients are first sorted and distributed to the various special departments in which they may require treatment. The in patients are treated in units, which may be either medical, surgical, or special. The medical unit contains 22 male and 16 female beds; the surgical unit has also a third ward with 14 beds for accident cases; all the units have, in addition, a couple of side wards, each with a pair of beds for cases requiring isolation. The surgical units have each their own operating theatres and classrooms. Dr. Mackintosh makes a special point of having a bedroom, bathroom, and sitting-room in each unit for the house officer in charge, who thus lives in the midst of his patients, but for meals and recreation has the run of messroom, billiard-room, smoking-room, and the like, in common with all the other house officers. The resident staff have no food in their private apartments. Each unit has a further liberal supply of other rooms and offices to make it complete; there are three beds per unit of nursing staff, and each ward has a ward maid, as has the operating theatre. Other chapters in the book deal with the design of hospital kitchens, laundry units, methods of heating, the nurses' accommodation, and provision for cases of nervous and incipient mental disease. The Nurses' Home at the Toronto Hospital for Sick Children is described as probably the best in existence, and is detailed and figured; the building cost £28,000, and appears to accommodate 63 nurses. Dr. Mackintosh gives full lists of the fittings required in the various hospital units and departments, and many illustrations of these are inserted; a number of plans at the end of the book do much to make the designs plain. No key is given to the numbers appearing in the plans of the

[1] *The Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal Tract.* By A. W. George, M.D., and R. D. Leonard, A.B., M.D. Boston: The Colonial Medical Press 1915. (Dbl. roy. 8vo, pp. 291; 357 figures. 10.00 dols. in U.S.A.; £2 5s. in England.)

[2] *The Treatment of Acute Infectious Diseases.* By F. S. Meara, M.D., Ph.D. New York: The Macmillan Company. 1916. (Roy. 8vo, pp. 539. 15s. net.)

[3] *A Handbook of Fevers.* By J. Campbell McClure, M.D.Glasg. London: Shaw and Sons. 1914. (Demy 8vo, pp. 478; 25 charts. 8s. 6d.)

[4] *Construction, Equipment, and Management of a General Hospital.* By D. J. Mackintosh, M.V.O., M.B., LL.D., F.R.S.E. Second edition. Edinburgh and London: W. Hodge and Co. 1916. (Roy. 8vo, pp. 176; 52 figures, 17 plans. 15s. net.)

Toronto nurses' residence, though this could easily have been done on page 151. The book is full of invaluable practical information, the harvest of years of experience. It should be in the hands of all who have to do with the design of any hospital larger than a cottage hospital.

NOTES ON BOOKS.

THE fifty-second edition of Herbert Fry's *Royal Guide to the London Charities*[5] gives a brief and admirably clear survey of the metropolitan charities of all sorts, in alphabetical order, and with indexes that enable cross-references to be made with ease. The book is up to date and accurate. It should be in the hands of donors as well as beggars, being designed for those who wish to give with due discrimination as well as for those who have some lame dog to help over a stile. The editor's preface sets out clearly the present need for thrift in all public and private expenditure, yet emphasizes the still greater need for keeping the two or three thousand charities he tabulates at full work, unstinted of subscriptions. With these views we heartily concur.

Russia is a country to which few British travellers have penetrated in the past, no doubt in consequence of its remoteness, the long sea journey that usually leads to it, and the difficulties of the Russian tongue and the Cyrillic alphabet. In the future it is to be hoped and confidently expected that the calls of commerce or pleasure will induce a far greater number of the inhabitants of Great Britain to go travelling in the great country of our gallant ally. A Russian grammar and reading book on Hugo's simplified system[6] do all that can be done to make the language problem easier for a race notorious, as is ours, for its poor skill in the tongues of foreign nations. We have received a copy of Part I of the grammar and reader, each to be completed in three parts, and we commend them to the favourable notice of our readers.

[5] *Herbert Fry's Royal Guide to the London Charities.* Edited by J. Lane. Fifty-second edition. London: Chatto and Windus. 1916. (Cr. 8vo, pp. 416. 1s. 6d.)

[6] London: Hugo's Institute for Teaching Foreign Languages. 1916. (Cr. 8vo, pp. 34 and 42. 1s. 6d. the two books.)

MEDICINAL AND DIETETIC PREPARATIONS.

Horlick's Malted Milk Lunch Tablets.

WE have recently received from the Horlick's Malted Milk Company a specimen tin of Horlick's malted milk in tablet form, specially designed for the use of the army and navy. The tablets are sent out in tightly closed flat tins of a convenient size for carrying in the pocket, and are stated on the tin to contain full nourishment for one man for twenty-four hours. The tin supplied to us contained 79 tablets, having a total weight of 107.5 grams (3.8 oz.). From an analysis of Horlick's malted milk made by us some years ago, the weights of sugar, fat, protein, and ash contained in the whole contents of the tin are as follows:

		Approximate Calorific Value in Large Calories.
Protein (from total nitrogen)	15.4 gm. × 4.1 =	63.1
Fat	7.8 gm. × 9.3 =	72.5
Reducing sugars calculated as maltose	59.7 gm. × 4.1 =	244.8
Ash	3.9 gm.	
Total		380.4

The above, however, does not give quite the total value of the preparation, since a certain proportion of the carbohydrate is present in a form other than that of reducing sugars; probably the total calorific value would be about 450 calories. The total calorie value of the ration of the British soldier in this war is calculated to be from 4,500 to 5,000 calories, and that of the German soldier about the same, or possibly a little less. It is evident from the above figures that the contents of one of these tins can only be regarded as containing sufficient nourishment for a man for twenty-four hours, unless it be as an emergency ration to tide over some special period of difficulty. The tablets are palatable and may be sucked in the same manner as an ordinary sweetmeat.

A BILL was introduced into the United States Congress on January 4th providing for the establishment of a fund of £2,000,000 for the construction of drainage works to reclaim wet, overflowed, and swamp lands. This is intended as a measure for the prevention of the dissemination of malaria and other diseases.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

THE Report of the Royal Commission on Venereal Diseases was issued on March 2nd. It is signed by all the Commissioners, subject to reservations as to prisoners and poor law patients, by Sir Kenelm Digby and Canon Horsley.

The Commission was appointed on November 1st, 1913, "to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented, it being understood that no return to the policy or provisions of the Contagious Diseases Acts of 1864, 1866, or 1869 is to be regarded as falling within the scope of the inquiry." Eighty-five witnesses were examined, to whom 22,296 questions were put.

I. INTRODUCTION.

In the first section of the report previous action by the State is noted. This was concerned with the control of venereal disease in the army and navy. The Contagious Diseases Act of 1864 aimed at preventing venereal diseases by subjecting prostitutes to surveillance and medical examination. Amending Acts were passed in 1866 and 1869.

A Medical Committee and Parliamentary Committees appointed to inquire into the working of the Acts in 1868 and 1869 recommended the cautious extension of the system of the Acts.

Formidable opposition to the Acts led to the appointment of a Royal Commission in 1870, which recommended the discontinuance of the periodic examination of prostitutes, but otherwise was in favour of the system of the Acts. The House of Commons Committee of 1879, appointed for the same purpose, was almost equally divided in opinion, but the majority reported against the repeal of the Acts. In 1883 the examination of prostitutes was abolished by Order, and in 1886 the Acts were repealed.

The Commissioners were precluded from "considering the policy of these Acts, but they wish to place on record their view that the evidence they have received, which includes that of several Continental experts, points to the conclusion that no advantage would accrue from a return to the system of those Acts. So far from this being the case it is to be noted that the great improvement as regards venereal diseases in the navy and army has taken place since the repeal of the Acts." They concur in the conclusion of the Advisory Board of the Army Medical Service of 1903: "Better results are likely to be obtained by the diffusion of the knowledge of the serious consequences of these diseases and the provision of effective treatment for both sexes under conditions to which no stigma is attached."

Other departmental inquiries are noted which showed the grave effects upon the poor caused by the diseases, and the totally inadequate provision for their treatment.

Description of Venereal Diseases and Means of Transmission.

After a note on the introduction of syphilis into Europe there is the following significant passage:

"Our present knowledge of the cause of syphilis and the great advances which have been made in its diagnosis and treatment is of less than twelve years' duration; it may be said to have commenced with the successful inoculation of animals by Metchnikoff and Roux."

The clinical description in this section is admirably written.

II. PREVALENCE.

Many pages in the second section are devoted to the critical examination of the statistics presented by various Government departments, and private persons. Few of them satisfactory, only the figures from the army and navy can be considered reliable.

The Registrar-General gave the death-rate from syphilis for many years, and added "the worthlessness of the returns as an absolute statement of the number of deaths from venereal disease scarcely requires demonstration." Deaths from syphilis are not so certified from fear of hurting the feelings of relatives, and large numbers are ascribed

* Royal Commission on Venereal Diseases. Final Report of the Commissioners. [Cd. 8189.] Price 1s. 11d.

to other causes now known, or beginning to be known' to be due to syphilis—for example, locomotor ataxia, general paralysis, and aneurysm of the aorta. Taking into account the curves of syphilis and aneurysm and the rise of the population, Dr. Stephenson is inclined to believe in a "genuine fall" in the mortality from the disease. On the other hand, the number of diseases known to be closely associated with syphilis has largely increased in the same period, while the reluctance to certify syphilis as a cause of death has probably not diminished. "We are therefore doubtful whether there has been any reduction in the mortality justly attributable to syphilis in recent years."

The Scottish figures correspond with those of England and Wales. Ireland, judging by the figures of the years 1901–10, shows an increase of 70 per cent. in deaths from syphilis; but it was explained that "the increase was more apparent than real," and could be traced to better certification and to "the system of direct communication with the doctors."

In the navy the incidence of syphilis has declined from 48.92 per 1,000 in 1905 to 28.93 in 1912. Gonorrhoea shows a higher rate than syphilis and no distinct improvement is exhibited. The Mediterranean and Cape stations present the best records, the Home station the worst.

In the army the number of recruits rejected for syphilis has fallen from 0.63 per cent. in 1890 to 0.14 per cent. in 1911–12, and the decrease has been fairly uniform throughout this period. The fall in the proportion of rejections for syphilis has been far greater than that due to other physical disabilities. Since recruiting sergeants tell would-be recruits to get cured before they present themselves for medical examination, "these figures cannot be regarded as a conclusive indication of decreasing prevalence among the civil population." The returns for soldiers on home service show much improvement. The rate for all venereal diseases has fallen from 224.5 per 1,000 in 1888 to 56.5 in 1912; whilst all other diseases fell from 700.9 to 346.4. In the same period the percentage of venereal disease to the whole fell from 30.7 to 16.3. At first gonorrhoea and syphilis were practically equal in incidence, now their proportion is as 3 to 2. In India the prevalence of syphilis is slightly lower, and of gonorrhoea somewhat higher, than at home.

Professor Blaschko gave comparative figures "showing the incidence of disease in various European armies and navies, indicating a generally falling tendency, except in the navy of the United States." The figures for France and Germany show little change in the periods taken. "Assuming these figures to be directly comparable, which is probably not the case, the British army at home and in India shows higher figures than those of any other army included in the table; but the percentage of infected recruits is more than five times as high in Germany as in Great Britain, and Professor Blaschko considers that the prevalence of venereal disease in Germany is higher among the civil population than in the army, and higher than in Great Britain."

The Local Government Board's figures for the home population and general and Poor Law institutions are not very illuminating, owing to confessedly incomplete returns due to many causes. Perhaps the most instructive are the figures for ophthalmia neonatorum. The case-rate works out at 6.5 per 1,000 births; in urban districts it was 6.8, and in rural districts only 1.0, and it is thought that the difference corresponds to real difference in the incidence of the disease.

The prison returns are similarly unsatisfactory, and consist only of those obtained on specific occasions. In local prisons just under 2 per cent. of the prisoners showed clinical signs of venereal disease. But more noteworthy is the record that half of these diseased persons were discharged in an infective state. In convict prisons 17.04 per cent. presented signs of having had syphilis. In Borstal institutions for young prisoners between the ages of 16 and 21 specially selected as likely to become habitual criminals, of 941 inmates 16.26 per cent. presented one or more signs of congenital syphilis, and there were also five cases of acquired syphilis. "The figures were carefully compiled, and may indicate that mental defects due to this cause conduce to some extent to produce the class of prisoners which come within the scope of these institutions." The Scottish figures are similar, and again 56 per cent. of the diseased were discharged in an infectious state. The Irish figures are much smaller, but there is the same tale of more than half the diseased discharged whilst still in an infectious state.

The Lunacy Commissioners gave the figures of the incidence of general paralysis of the insane, based upon the pauper admissions to the asylums during the five years 1908–12. The totals gave rates of 3.07 for males and 0.55 for females per 1,000 respectively to the population at the census of 1911. Cases are far more numerous in towns than in rural areas. In the London asylums the total percentage due to general paralysis is a little over 8, and the male admissions a little over 15, indicating the considerable part played by syphilis in peopling the London asylums.

Certain special investigations are quoted. Dr. Fildes summarized the results of 1,002 Wassermann tests made by Dr. Bulloch among patients at the London Hospital specially selected and being treated for reasons wholly unconnected with syphilis; 10.3 per cent. of the males and 5.1 of the females gave positive reactions. Congenital syphilitics were not included.

Sir John Collie submitted the results of the clinical examination of 1,119 cases of accident and of 557 healthy persons examined for the purposes of their work. Amongst these there were 60 cases (including 4 of gonorrhoea), or 3.58 per cent., of venereal disease. He submitted the blood of 491 healthy persons to Dr. Mott for the Wassermann test; 46, or 9.36 per cent., gave a positive reaction. "The investigation dealt only with a somewhat superior class of workers. The prevalence of venereal disease which is indicated seems higher than might have been expected."

The Commission caused the serum test to be performed on all the cases admitted into fourteen asylums, representing all classes of the community, for three months in 1914, with the result that 15.4 per cent. gave a positive reaction.

The investigation of Poor Law patients carried out by Dr. Mott is of interest. Epileptics gave 7.4 per cent. positive reactions, insane non-paralytic patients 8.4 per cent., Poor Law patients in infirmaries in London 19.9 per cent., feeble-minded children 8.1 per cent. Mothers of newborn infants in Shoreditch gave 19.7 per cent. positive reactions, in St. Pancras only 6.6 per cent.; in the Shoreditch cases 29 of the mothers were unmarried, and these gave 27.6 per cent. positive reactions.

(*To be continued.*)

THE RETRENCHMENT COMMITTEE.

FINAL REPORT.

THE committee on retrenchment in the public expenditure, of which the Chancellor of the Exchequer is chairman, has presented its final report, dated February 21st, 1916. It was appointed to inquire "what savings in public expenditure can, in view of the necessities created by the war, be effected in the Civil Departments without detriment to the interests of the State." Its scope, therefore, did not include expenditure on army, navy, or munition services, and even as regards the civil departments it was warned that questions of policy already decided by Parliament should be avoided as far as possible, as it would be impracticable at the present time to introduce controversial legislation.

The first section of the report states that the increase of civil expenditure in recent years has been enormous and unprecedented—from £32,000,000 in 1895 to £90,000,000, an increase of nearly 200 per cent. The increase is due almost entirely to new grants, or new administrative work resulting from legislation or parliamentary policy. Thus, of a total increase of £40,000,000 on the Civil Service estimates, the grants required for old age pensions amounted to £13,500,000; for national insurance and labour exchanges to £9,500,000; and for education to £12,000,000.

Measures already taken to ensure economy are enumerated. The first attempt was not particularly successful, inasmuch as the estimates for the civil service and revenue departments for 1915–16 showed an increase of £205,000. The corresponding estimates for 1916–17, excluding the cost of new services required entirely for war purposes, show certain increases and certain decreases, but the net decrease is estimated to be over £3,000,000, apart from the large reduction of capital expenditure not shown in the

estimates effected by curtailing the issue of loans to local authorities—a reduction at the rate of over £4,000,000 a year—and in other ways.

The report makes certain recommendations for further economies, and the following notes apply to such as have reference to matters of medical interest.

Factory Inspection and Certifying Surgeons' Reports.

After commenting on the rapid growth of expenditure for the inspection of factories and mines, and apparently accepting the view that it cannot be reduced, the committee makes the following recommendation with regard to reports of certifying surgeons on accidents:

We understand that the reports of certifying surgeons on accidents, which cost £12,500 per annum, are now of little value, and entail in all serious cases a duplication of the reports made by the inspectors. The Committee on Accidents in Factories recommended that legislation should be obtained to enable them to be dispensed with, and we concur in this proposal.

The Board of Control.

This board consists of a chairman and ten commissioners, with salaries rising to £1,500 a year. The committee considers that an equally efficient organization could be secured by a board of not more than five members, and by the substitution for the others of deputy commissioners or inspectors with maximum salaries of £800, as provided by the Mental Deficiency (Scotland) Act. In England legislation would be required to make the change, but the committee recommends that any vacancies arising in the present board should not be filled up. It also recommends that the contributions towards the cost of institutional treatment for mentally defective persons should be reduced except in urgent cases, and a limitation on the cost of maintenance fixed in all cases.

The Local Government Board.

The vote for this department has grown, in round numbers, from £221,000 in 1905–6 to £362,000. The committee recognizes that this increase is mainly explicable by the increased attention paid to medical, sanitary, and housing problems, but recommends that a special inquiry into the administrative staff of the board should take place. The committee then proceeds to make the following reference to fees for the notification of infectious disease:

(*Notification.*)

We recommend that the Local Government Board should take immediate steps to revise the fees paid to medical practitioners for the notification of infectious diseases. At present the medical practitioner receives a fee of 2s. 6d. if the case occurs in his private practice, and 1s. if the case occurs in his practice as medical officer of any public body or institution. The total sums paid for notification fees in England and Wales in each of the five years ending 1911 was approximately £30,000; but since that time the total cost has steadily risen, and a further substantial increase of cost will probably result from the recent order requiring the notification of cases of measles and German measles.

As doctors have now become familiar with the work of notification, and so many additional diseases have been added to the list since the fees were originally fixed, we consider that the time has come for reducing the 2s. 6d. fee to 1s. The amount of labour involved in filling up the notification form is, we understand, very slight indeed, and a fee of 1s. would seem to be adequate remuneration for the purpose.

The Board of Education.

The committee recommends that children under 5 should only be admitted to schools in special cases, and that an inquiry should be instituted into the possibility of introducing a normal minimum age of 6.

With regard to medical work the report contains the following paragraph:

Medical Work.

We understand that the activities of the Board of Education and the Local Government Board overlap to a considerable extent as regards arrangements for the health of mothers and young children under school age, and that the two departments have found it very difficult to settle a clear line of demarcation between their respective spheres. It is in our opinion most unsatisfactory that two Government departments should deal with what is essentially the same problem, and it can only lead to disputes and an unnecessary inflation of staff.

It is a difficult problem to decide between the two departments in this matter; but as long as there continue to be two medical branches, we consider that, in all the circumstances, the only satisfactory solution would be that the control of all institutions (including schools for mothers and day nurseries) providing in any way for the welfare, from the health point of view, of mothers or children under school age should be handed over by the Board of Education entirely to the Local Government Board for them to administer in connexion with their public health work generally, and in co-operation with the local health authorities. This plan is being adopted in Scotland, and we see no satisfactory alternative to it in present circumstances. The Board of Education could of course still continue to pay grants, if necessary, in respect of purely educational classes in cooking, needlework, etc., held in any of the institutions or by local education authorities elsewhere, but the duties of the Board's medical branch should, in our opinion, not extend beyond the supervision of the health work carried out for children of school age who are being educated in elementary, etc., schools under the Board's control.

The above arrangement would, of course, be merely a makeshift, and it is very desirable in our opinion that the first opportunity should be taken of amalgamating the medical branches of the two departments altogether.

National Insurance.

The committee does not make any definite recommendations with regard to the amalgamation of the several boards of commissioners; it considers that the centralization of the whole service does not appear to be practicable, but thinks that it should be possible to devise a scheme which would safeguard national interests and sentiments without the retention of so many as twenty-one commissioners with salaries amounting to £24,600 per annum.

An analysis of the cost of the central administration shows that the rate per thousand insured persons is as follows: England, £28; Scotland, £36 14s.; Wales, £51; Ireland, £59 14s. While recognizing that difference in the numbers and distribution of the population would not unnaturally result in a smaller charge per head in England than in other parts of the United Kingdom, the committee is "not aware of any sufficient difference of conditions between Wales and Ireland on the one hand and Scotland on the other to justify the much heavier charges incurred by the Welsh and Irish commissioners."

The committee expresses the opinion "that much could be done to reduce the expense of the Act, and to increase the sums available for benefit by simplifying its more elaborate provisions." Something has been done in this direction by departmental action, but before other alterations from which larger savings would accrue legislative sanction would be necesary. The committee's reference to this subject concludes with the following sentences:

But the evidence which we have taken showed that few, if any, of these proposals would be absolutely non-contentious; and it was quite clear that the questions which afford the best field for economies—the system of medical and sanatorium benefit, the constitution of insurance committees, the approval of small societies, etc.—were acutely controversial. We could not have dealt with any of these questions without going far beyond the terms of our reference, and we have come to the conclusion that the best results would be obtained by a special inquiry into the whole administration of the Act with a view to its reorganization on a simpler basis.

In the concluding section of its report the committee expresses the opinion that all Government departments which require local authorities to furnish statistical or other reports should carefully revise their requirements without delay with a view to simplification, and that this policy should be maintained and extended after the war.

A DISCUSSION on food inspection, standards of purity for food supply in war time, and the utilization of condemned stores, will be opened by Dr. J. Wright Mason, M.O.H. Hull, at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Thursday, March 9th. The chair will be taken by Sir William Collins at 4.15 p.m.

DR. ROBERTSON, Health Commissioner of Chicago, has found (we learn from the *Journal of the American Medical Association*) a philanthropist to finance for a year his scheme of a public health magazine to be distributed free; the issue is to be about 100,000 copies a month.

IT was announced in the BRITISH MEDICAL JOURNAL of January 29th that the *Giornale Internazionale delle Scienze Mediche* had been discontinued owing to the death of the publisher, Enrico Detken. Its place has been taken by *La Medicina Pratica*, the first number of which appeared on January 31st under the direction of Professor Luigi Maramaldi, lecturer on therapeutics in the University of Naples, who was for many years editor of the defunct periodical. The new journal is for the present a monthly, but will be published fortnightly "as soon as barbarism is humiliated and right restored."

British Medical Journal.

SATURDAY, MARCH 4TH, 1916.

RECRUITMENT OF DOCTORS IN ENGLAND AND WALES.

We are officially informed by the War Office that, in accordance with their previous announcements, doctors who have undertaken to accept a commission in the Royal Army Medical Corps (if offered one) will not be taken for general service; and therefore that any doctor in England and Wales who (whether attested under the Derby scheme or not) has enrolled under the scheme of the Central Medical War Committee or has offered his services in the Royal Army Medical Corps direct to the War Office should, if he receives a notice paper from a recruiting officer calling him up (whether by reason of attestation or under the provisions of the Military Service Act), return it to the recruiting officer, together with his certificate of enrolment, or the War Office acknowledgement of provisional acceptance, as the case may be; and the notice will then be cancelled and the practitioner remain in the Reserve until selected for a commission in the Royal Army Medical Corps.

Doctors will not be called up, whether by reason of attestation or under the Military Service Act, until after March 31st, 1916.

Doctors in England and Wales who have not undertaken to accept a commission (if offered one) in the Royal Army Medical Corps will, when called up (whether by reason of attestation or under the Military Service Act), have the same rights of appeal for exemption as men who are not doctors; but all cases coming before the Central Tribunal will be decided by that tribunal after receiving advice from the representative committee of the medical profession specially recognized for the purpose.

Analogous arrangements will obtain in respect of doctors in Scotland.

The importance of the above official information will, we have no doubt, be fully appreciated, and the question may be asked:

What, then, is the course that a medical man of military age should now take to ensure that his services shall be used in the way that shall best serve the interest of the nation?

In the first place, we would advise him, if he has not already done so, to enrol at once—that is, send in his name to the Central Medical War Committee, 429, Strand, London, W.C., or to the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh, undertaking to accept a commission in the Royal Army Medical Corps, if offered to him, realizing that, if he takes this course, all his circumstances—public and, so far as he wishes, private—will be considered with the utmost care by a professional body before it is decided whether he should in fact be called upon to take a commission.

In the second place, every medical man who has already enrolled should make it his business to point out to every one not enrolled that it is his duty and advantage to do so at once. It is to his advantage because, when he receives a notice paper from a recruiting officer calling him up, the production of his certificate of enrolment will ensure that the notice shall be cancelled and that he will remain in the Reserve, thus securing that, as explained above, his case shall be fully considered by a professional body before it is decided whether he should be called upon or not. It is his duty, because it is only by having before it provisional offers of service from the general body of medical men that the Central Committee can arrange an equitable distribution of military and civilian services throughout the country.

An interesting case of a medical practitioner on the staff of a well known hospital applying for exemption from service was heard at a local tribunal last week. The tribunal, according to the report before us, granted him one month's extension and expressed the opinion that the applicant ought to go. It would appear, therefore, that this gentleman might shortly have found himself in the combatant ranks of the army had he not, as we hear is the case, since enrolled himself, so that his case, as above explained, will now be dealt with by the professional body.

THE STATE AND THE CARE OF THE CHILDREN.

In recent issues we have reviewed the Report of the Medical Officer for the Board of Education for the year 1914. Blue books are not seductive reading at any time; in war time we fear few will be attracted to the first-hand study of this report. Yet there is no production that is more pertinent to these grave times, and to the fearful destruction of life that has reduced, and must still more reduce, the virility of our people. For the report deals with the coming generation, and from this we must hope to rebuild the waste places of our homes.

The time was when education meant no more to the average citizen than a due instruction in the three R's. But here in a blue book we find the chief medical officer of the Board of Education dealing almost wholly with the production and preservation of life, for that, after all, is the meaning of schools for mothers, care committees, and the like. When the school medical service is viewed from this standpoint it takes an altogether different value in the national assets. The service is no longer merely an aggregation of inspectors who prowl round the schools with eyes alert to find fault with curriculum, buildings, lighting, books, and the bodies of the children themselves; that work, truly falls to them, but they are now found to have a far more important sphere of action—a solicitude for the very fount of life.

With the war many of the medical officers have undertaken military service, and money grants have been cut off. Therefore much of the work must be curtailed, clerical work especially; the preparation of reports, even research work, must be foregone. But there should be no slackening of the residual and essential part of the school medical officers' work, the supervision of the schools in the interest of the common health, the prompt elimination and care of the obviously unfit, and the promotion by every means, official and voluntary, of a healthy motherhood and a well-born infant. The Board of Education has recognized in the most prompt fashion the necessities of the situation; it has freely permitted the release of

its medical officers for military service, and no red tape has hampered the revision of the orthodox procedure in regard to routine medical examinations.

The gain from the medical side of educational work may not be immediate, but it is certain and cumulative. We may take it that some part of the diminution of the infantile death-rate is to be credited to it. As Sir George Newman writes: "The decline in recent years in infant mortality-rate is providing broadly a direct saving of 20,000 lives per annum. This direct gain is mainly due to more enlightened mothering, the better care and management of infancy, and the effective treatment of infantile disease—all three contributions being due, generally speaking, to an improvement in the education and training of the mother in all that concerns healthy maternity and infant welfare." The school work done is no less impressive. In London alone in 1914 upwards of 194,000 children were examined; 101,000 were found to be in need of treatment and 86,000 received treatment. It is estimated that in England and Wales 1,900,000 children are examined each year, of whom 650,000 present remediable defect and 375,000 actually receive treatment. There is reason to take to heart Sir George Newman's aphorism, "To save child life is an axiom of State preservation; to remedy defect is an axiom of State economy."

One of the most interesting sections of the report deals with the schools for mothers. These institutions originated in voluntary effort; they are now recognized and subsidized by the State to the half of their expenditure, and many have been opened and are now worked by the local authorities. But the working of these schools affords a situation not without its humorous aspects. There are, besides many local authorities, two Government departments interested in them. The Board of Education takes a paternal interest and loosens its purse strings on their behalf in so far as they are schools for mothers, whilst the Local Government Board is willing to act as the foster mother of these self-same institutions and dole out something for their sustenance in so far as they are maternity centres. Each of these Boards issues regulations, and tells the workers in these institutions what features of their work it is that stimulates its affectionate interest, and at the same time states upon what score the needful money can alone be obtained.

The report of the Board of Education attempts to show that there is a difference in the ultimate work of these two governing bodies. "If the ultimate object of the efforts made be considered, a broad line of demarcation between the two can be established without much difficulty. Thus the institutions included under the title 'schools for mothers' have for their main objects the reduction of infant sickness and mortality by means of the education of the mother. They train the mother to keep her baby in good health through a common-sense application of the ordinary laws of hygiene. The training may be given by means of personal advice from doctor or nurse to individual mothers, by home visitation, and by means of collective teaching and systematic classes. 'Maternity centres,' on the other hand, have the health of the mothers and children as their main care. They provide medical advice and treatment for expectant and nursing mothers, and for infants and little children."

We may be particularly dense and lacking in appreciation, but we wholly fail to see any "broad line of demarcation" in "the ultimate object" of these two modes of action. The one has for a "main object the reduction of infant sickness and mortality," the other "the health of the mothers and children as their main care." It is scarcely arguable that the means adopted to attain these ends are different, but to maintain that there is any difference in the end is to maintain a distinction without a difference.

Even the point that the education authority has nothing to do with the treatment of disease fails in practice, for in the discussion of "The Infant Consultation" we read: "If any treatment is provided, this should be incidental in character and limited to children suffering from minor and temporary ailments—an occasional grey powder, a little boracic ointment, etc." One is inclined to ask if the point of the order lies in the quantity of the ointment to be supplied. The fact is that the more the report tries to show that the Board of Education and the Local Government Board have separate functions in regard to these "schools for mothers" or "maternity centres," or by whatever other name they may be known, the more effective is the demonstration that there is no difference between the aim or the effective attainment of these two bodies; and in these times, when thrift and reasonable economy is a vital necessity, it would be well that the two bodies should compose their differences and put a single effort into a piece of work that is of inestimable value. The Retrenchment Committee in its last report goes somewhat further, for it recommends as a temporary expedient that the control of all institutions, including schools for mothers and day nurseries, providing in any way for the welfare, from the health point of view, of mothers, or children under school age, should be handed over by the Board of Education to the Local Government Board, to be administered in connexion with that Board's public health work generally and in co-operation with the local health authorities. The duties of the medical branch of the Board of Education should not, in the Committee's opinion, extend beyond the supervision of the health work carried out for children of school age who are being educated in public elementary schools. We are not sure that this proposal will prove to be non-contentious, for there is a good deal to be said for the transfer in the opposite direction. In any case, however, the Committee considers this arrangement merely a makeshift, and expresses the opinion that it is very desirable that the first opportunity should be taken of amalgamating the medical branches of the two departments.

Up to the present it would appear that the only effort for united action between the two departments has been the issue of a joint circular (No. 906, May 31st, 1915) in which the position of each department is set out; a hint is given that the institutions are to range themselves under one or other department for the purpose of grant earning, "though joint aid by both departments in exceptional cases is not precluded"; and the statement made that "questions arising under this Memorandum will be referred for investigation and decision to a joint committee of the two boards." Let us hope that the "questions arising" will be in such a continuous flow that the joint committee will ultimately become the single governing authority of these "maternity centres" and "schools for mothers."

RETRENCHMENTS.

THE Final Report of the Treasury Committee on Retrenchment in the Public Expenditure is a disappointing document, not so much because the retrenchments it recommends do not in the aggregate

amount to the cost of the war for a single day, but because of the failure to make plain what economies it thinks can at once be effected. The Committee was not instructed to consider the expenditure on army, navy, and munition services; nor was it allowed to consider the question of the payment of salaries to members of the House of Commons, though it has ventured to recommend the House to withdraw the subsidy of £2,600 a year which it has been in the habit for the last twenty-two years of voting towards the cost of its refreshment room. The Committee was also told that even as regards the civil departments questions of policy already decided by Parliament should be avoided as far as possible, "as it would be impracticable at the present time to introduce controversial legislation." The student of the report is left in some doubt whether the Committee considers that the recommendations it makes, the majority of which would require legislative sanction, do or do not come within the scope of the definition of "controversial legislation"; nor is it made plain what changes it thinks should at once be made and what must be deferred until after the war.

Speaking generally, it seems to have come to the conclusion that the country is over-inspected; it states that as a temporary measure some departments have arranged to curtail inspecting work to a large extent, and it recommends that this policy should be generally adopted as far as possible throughout all departments of the civil service.

Whether the proposal that children under 5 should only be admitted to elementary schools in special cases, and the suggestion that it may be possible to introduce a normal minimum age of 6, are to be considered matters outside the scope of controversy is not plain; it will be surprising if they prove to be so. The Committee definitely recommends—apparently for immediate action—the transfer from the Board of Education to the Local Government Board of the responsibility for medical work, except in public elementary schools, and that the first opportunity should be taken of amalgamating the medical branches of the two departments. This recommendation seems to bring us a step nearer to the ideal of a ministry of public health, although as matters now stand it is difficult to see how such a ministry could be placed on a logical basis without including national insurance, for the Act by which it was instituted is entitled "An Act to provide for insurance against loss of health and for the prevention and cure of sickness. . . ." The Committee was evidently itching to make some drastic recommendations with regard to the Insurance Act, but was told that few, if any, proposals which could be made for economy would be absolutely non-contentious, and that it was quite clear that the system of medical and sanatorium benefit, enumerated as among the questions which afforded the best field for economies, were acutely controversial. They were expressly excluded from the reference to the Insurance Finance Committee, which is instructed to report upon "any amendments in the financial scheme of the National Insurance Acts which experience of the administration of sickness, disablement, and maternity benefits may suggest as desirable, within the existing limits of contributions and benefits, and apart from further Exchequer grants." The Retrenchment Committee evidently does not favour further grants, seeing grave objections to departing from the principle that the benefits to be paid should be measured by the contributions received, including the automatic contribution from the Exchequer.

Two of the recommendations made by the Retrenchment Committee have a very direct, and it seems possible an immediate, interest for the medical profession. The first is the proposal to reduce the fee for the notification of infectious disease occurring in a practitioner's private practice from 2s. 6d. to 1s., the amount now paid for notifications of cases occurring in his practice as medical officer of any public body or institution. The reasons given for this recommendation are rather curious: first, that doctors have now become familiar with the work; secondly, that many additional diseases have been added to the list since the fees were originally fixed; and thirdly, that the labour involved in filling up the form is very slight. It does not seem to have occurred to the Committee that the fee is not paid for clerical labour, but for knowledge and skill. The other recommendation is that the reports of certifying factory surgeons on accidents should be abolished, mainly on the ground that in all serious cases they entail a duplication of the reports made by the factory inspectors. These two recommendations will call for the serious consideration of the British Medical Association and the profession in general, and we have therefore quoted them textually at page 347.

CRIPPLED SOLDIERS.

ST. DAVID'S DAY was celebrated by Welsh men and women in London by a great patriotic meeting in the Opera House in Kingsway, and, appropriately enough, since St. David is said to have been something of a physician, the occasion was taken to help the fund for providing comforts for the Welsh soldiers; for, as Lord Harlech, Colonel of the Welsh Guards, who presided, told the meeting, Wales has provided over 200,000 soldiers for this war. Another Welsh soldier, Sir Francis Lloyd, the General Officer Commanding the London District, made a stirring speech, but, before this, Major Robert Jones, F.R.C.S., of Liverpool, had paid fitting tribute to the manner in which the traditions of the Welsh troops were being maintained. One of his most impressive experiences had been to hear in the dusk, from a village close to the Welsh lines, the men coming back from the trenches singing as only the Welsh could sing. The story of sanitation at the front was like a fairy tale. The rude ploughed fields of twelve months ago had undergone a marvellous transformation at the touch of sanitary science, and now the sanitation of the war area in Northern France was better than that of any rural area in England. He concluded with a plea for the crippled soldier; to keep him from pain and poverty was a sacred charge upon the nation. Mr. Lynn Thomas made a strong appeal to the patriotism of Wales. He spoke of the teaching of St. David and his insistence upon the value of discipline. Were he alive to-day St. David would have sought to induce his countrymen to understand the importance of strict discipline to attain victory over the monstrous doctrine of might and frightfulness. Mr. Lynn Thomas dwelt on the urgent need and very crying call to go at once to the rescue of the tens of thousands of crippled men, victims of the war. He knew of cases in which young soldiers had been reported unfit for further service who, he believed, could be rendered fit by modern orthopaedic treatment. When it was remembered that the United States after the Civil War had about 400,000 cripples from their army, which was not quite so large as the British army to-day, the necessity would be apparent for immediate action in order to give wounded soldiers with crippling injuries the advantages of the newer principles of treatment. He had recently visited in France a hospital conducted by eminent American surgeons who confessed that they were confronted by new conditions in

crippled limbs and asked for new light. When it was given they expressed their warm appreciation of it. The head of the Army Medical Department at home was fully alive to the need, and was working hard to ensure that the new light should be made to shine upon the large number of crippled soldiers. The public should give its support. A special ministerial department should, in his opinion, be formed to deal with the restoration of crippled men so that they might again become useful citizens. He appealed to the Welsh members of Parliament to render all assistance in their power to hasten the desired consummation.

TRENCH NEPHRITIS.

TRENCH NEPHRITIS, which was recently the subject of an illuminating discussion[1] at a meeting of the Sections of Medicine and of Pharmacology and Therapeutics of the Royal Society of Medicine, has lately been described in a preliminary note[2] by Sir John Rose Bradford, who has had considerable experience of it in Flanders. He finds that but few cases of nephritis occurred among our troops until March and April, 1915; but in those two months far more cases were admitted to hospital than the total admissions for the whole period of the war up to that date. Further, in March and April typical renal dropsy, previously absent, was a marked feature of the cases. Trench nephritis continued to increase absolutely (and probably also relatively) during the summer of 1915; Sir John has clinically seen some hundreds of cases, and has had the opportunity to study the special case sheets of 1,455 cases under treatment at various periods since the outbreak in all the base hospitals of the Expeditionary Force in France. Early in the disease two symptoms are especially prominent—namely, dyspnoea and oedema. Casts were absent from the urine in over a third of the cases. The greater part of the paper is based on a series of 571 cases in which casts were present (usually both hyaline and granular), while occasionally blood casts were found. In one group of patients smoky or blood-stained urine was passed early in the disease, and fever was noted, much as may be seen in the infective nephritis of bacterial origin seen in civil practice. When dropsy was present the urine was much diminished in amount, and might indeed be suppressed for periods of twelve or twenty-four hours. Only three fatal cases have come under his own observation. In one a chronic Bright's disease had been present, in the other two congenital defects of the kidney were found, and in all death was due to uraemia. It is remarked that the facies typical of acute renal disease was of exceptional occurrence, and that the dropsy was never excessive in amount. The albuminuria was considerable in the acute stages, and was found to be much more persistent than the dropsy; uraemic symptoms were common, particularly an ammoniacal odour, apathy, drowsiness, headache, nausea, and occasionally vomiting. Epileptiform seizures of a considerable degree of severity, and increased arterial blood pressure, the latter often accompanied by severe headache, were by no means rare. In a few cases the characteristic dyspnoea was accompanied by the physical signs of pulmonary oedema. Other uraemic symptoms, such as twitchings, cramps, and skin eruptions, were not noted in this series of cases. Bronchitis occurred in some 30 per cent. of a series of 278 soldiers with trench nephritis; in those instances in which they were looked for, changes in the fundus oculi were absent, so far as the acute cases were concerned. Men of all ages and all branches of the service were attacked, but the disease occurred only in the British troops of the Expeditionary Force, and not amongst the Indian troops—among whom, in fact, but three cases were reported. Sir John sums up his account by saying that trench nephritis may be described as a clinical entity, characterized by the following five features: The rapid subsidence of a well-marked renal dropsy, the frequent presence of bronchitis and dyspnoea, the severity and suddenness of onset of uraemic manifestations such as epileptiform seizures, the rarity with which inflammatory complications occur, and the extraordinarily low mortality of only 3 or 4 per thousand cases. He is inclined to believe that this form of acute nephritis is due to some infecting agent, which causes in the first place some illness, such as bronchitis, a severe cold, or diarrhoea. On the other hand, he remarks that bronchitis was common among the Indian troops, who yet escaped the acute nephritis. It may be added that in the discussion held by the Royal Society of Medicine referred to above, Dr. Abercrombie stated that he had been led by his large experience of the disease to assume that it was infective in origin and epidemic in distribution. The infecting agent, presumably a microbe, remains unknown.

[1] BRITISH MEDICAL JOURNAL, 1916, i, 278.
[2] *Quarterly Journal of Medicine*, Oxford, 1916, ix, 125.

BATHS EXTENSION AT BATH.

ALTHOUGH retrenchment is the order of the day, the city of Bath is engaging in fresh enterprise and cultivating its natural advantages to the utmost. Its apologia for so doing is the eight or nine thousand wounded or sick men who have already received free treatment at its springs. This influx, and the anticipation that the popularity of German and Austrian spas among British people will not be regained, has justified a new extension of the bathing establishment. The new "block" of baths, which was opened by Viscount French on February 23rd, consists of some fifty separate apartments arranged along either side of a corridor 200 ft. long. The accommodation provided here is chiefly for deep baths, in which the patient can be almost entirely immersed, while an undercurrent douche is applied to affected joints and muscles. There are also facilities for obtaining radiant heat and light baths, various modifications of the douche and douche-massage, and the Plombières treatment, which last is stated to have proved beneficial for men returning from the Eastern theatres of war suffering from the after-effects of malaria or dysentery. There is a room for mechanotherapy, and, reached by subterranean passages, a large swimming bath of the mineral water suitably cooled. With its floor of vitreous tiles, walls of glass mosaic, and bath linings of glazed fireclay, the new building looks both pleasing and sanitary. Lord French, whose speeches had a soldierly brevity, made the acknowledgement that although scientific resources were being applied on an unheard-of scale in every branch of military activity, he had never seen, in flying school, or munition factory, or anywhere else, such a remarkable example of modern efficiency and adaptability as in the measures taken for the care and treatment of the wounded. With Lord French was Surgeon-General Russell, who suggested that it required no great stretch of imagination to suppose that the Romans took advantage of the waters of Bath for their wounded soldiers, in just the same manner as with the British wounded to-day. The civic luncheon at the Guildhall was made noteworthy by speeches from representatives of the medical services overseas. Surgeon-General G. C. Jones, Canadian Army Medical Corps, said that Canada had provided ten thousand beds in France and elsewhere; but although the hospitals were staffed and maintained by Canadians, they were for the wounded and sick from all parts of the empire, and imperial bonds were being formed in the military hospitals which would never afterwards be severed. Surgeon-General W. D. C. Williams, C.B., Australian Army Medical Corps, said that in Australia more motor ambulances were given at the beginning of the war than they knew what to do with, and these were readily offered to other imperial units requiring them. The medical profession in Australia, like the consultants, professors, and general practitioners, had given up everything to serve the empire. Lieutenant-Colonel P. G. Stock, D.M.S., South African Medical Corps, gave some reminiscences of the South-West African

campaign, and said that the bountiful waters of Bath gave an additional vividness to the recollection of how in that campaign the water had to be carried a thousand miles, with only one pint a day allowance for each man.

CHOLESTEROL AS A CAUSE OF ATHEROMA.

Ignatovski found in 1908 that rabbits fed on animal food, particularly milk and eggs, developed arterial atheroma, cirrhosis of the liver, and enlargement of the suprarenal glands. These experiments have been followed up by Stuckey and others, and in 1913 Wesselkin came to the conclusion that the atheroma produced was due to the cholesterol contained in the eggs and milk. Dr. C. H. Bailey has repeated and extended[1] these observations. He finds that in rabbits a diet rich in cholesterol produces abundant deposits of anisotropic (or doubly refracting) fat in various organs and tissues. Prominent among these lesions is an atheroma of the aorta and pulmonary branches similar to that seen in human beings. In the liver these deposits produce cirrhosis, in the kidneys a proliferation of the interstitial tissue, mainly about the medulla. It is clear that the rabbit is unable to cope with large doses of cholesterol; if there is too much of this substance in its food, the animal becomes atheromatous. How far cholesterol can be regarded as the precipitating cause of atheroma or other forms of arterial sclerosis in human beings is a question of no little interest. It has been attacked by several writers, but their conclusions at the present time must be largely theoretical, as Dr. Bailey points out, for want of any adequate experimental basis.

THE LATE SIR WILLIAM TURNER.

The funeral of Sir William Turner, on February 18th, was preceded by a service in St. John's Episcopal Church, of which he had been a member. It was attended by, among others, the Lord Provost, the magistrates and corporation of Edinburgh, the commander-in-chief in Scotland (representing Lord Kitchener), and by representatives of the University Court, the Senatus Academicus, the General Council, the Students' Representative Council, and the University Union of the Universities of St. Andrews, Glasgow, Aberdeen, Oxford, Leeds, and Bristol; of the Royal Colleges of Physicians and Surgeons of Edinburgh; of the Faculty of Advocates; of the British Association; of the Royal Societies of London and Edinburgh; of the Royal Infirmary, the School of Medicine for Women, and the Royal Medical Society. Sir William Turner has bequeathed the bust of himself to the University Court, with the request that it may be placed near the bust of his old master, Professor John Goodsir, in the anatomical museum of the university, in the planning of which and in the acquisition of specimens for which he took an active part as professor of anatomy. At the meeting of the University Court on February 24th a letter was read from the Secretary for Scotland, expressing his regret at the death of Sir William Turner and his sense of the loss the university had sustained. On the motion of the court the chairman adopted a minute, which concluded in the following terms: "The University Court, in placing upon record their sense of personal and corporate loss, desire also to express their conviction that the university will long cherish the memory of the unceasing and self-sacrificing labour which the late Principal devoted for so many years to its service." Sir James A. Russell (Edinburgh) writes: "I miss the names of the late John Halliday Scott, M.D., 1877, Professor of Anatomy at Otago (N.Z.), and of the late Alfred Harry Young, who succeeded the late Morrison Watson as Professor of Anatomy at Manchester, from the list of Sir William Turner's former assistants who became professors of anatomy which is given in your obituary notice. Professor Young served about a quarter of a century; and Professor Scott, who died more recently, must have held office longer."

[1] *Journ. Exper. Med.*, New York, 1916, xxiii, 69.

R.A.M.C. COMFORTS FUND.

At the beginning of October, 1914, a central committee of ladies was formed, composed of wives of Surgeon-Generals of the Army Medical Service, with Lady Sloggett, wife of the Director-General of the British Forces in France, as president, and Mrs. C. K. Morgan as secretary and manager. Its object was to collect, pack, and forward comforts to the various medical units in France. During 1915 this work was enlarged, and bales of comforts were sent to Gallipoli, and latterly to Salonika. Since the spring of 1915 parcels have been forwarded weekly to R.A.M.C. men who were prisoners of war in Germany, either directly by the comforts fund or by ladies who kindly "adopted" a man for a given period. Altogether 2,040 bales have been sent out from the Royal Army Medical College, London, where packing rooms were placed at the disposal of the committee. Of this number, 607 bales, each weighing 11 lb., have been sent to prisoners of war in Germany, and 1,433 bales, averaging 50 lb. in weight, have been forwarded overseas. From the list of garments dispatched it appears that shirts, socks, pants, and vests are those most in request; but cardigans, scarves, handkerchiefs, mittens, and towels have also been sent, as well as complete suits, greatcoats, caps, and boots to prisoners. From the numerous acknowledgements both from prisoners of war and from the officers commanding the various medical units on active service, the ladies feel that their efforts have been greatly appreciated by those they have endeavoured to help. The committee has been greatly assisted by various ladies of the corps who have established "dépôts" in Scotland, Ireland, and different parts of England for the collection of comforts. The amount of money received to the end of December, 1915, was £2,152 5s. 11d. The fund has been most generously supported by the various Royal Army Medical Corps Institutes, both at home and abroad. The committee wish to thank most heartily all those who have so generously helped in the past by donations, both in money and kind, and hope for a continuance of their support. Parcels of comforts should be sent to the secretary, Mrs. C. K. Morgan, "R.A.M.C. Comforts," Royal Army Medical College, Grosvenor Road, London, S.W., and cheques to the treasurer, Lieutenant-Colonel F. W. H. Davie Harris, 124, Victoria Street, S.W.

THE RISE IN THE PRICE OF PETROL.

Further representations have been made to the Government in connexion with the price and supply of petrol to medical practitioners, and the Medical Secretary has received from the Commercial Department of the Board of Trade a letter stating that the matter is engaging the earnest attention of that department in conjunction with the Ministry of Munitions, and that it is hoped that arrangements will shortly be made whereby the difficulties which have recently been experienced will be as far as possible removed.

The lectures during this session before the Royal College of Physicians of London will be given as follows: The Milroy lectures by Dr. S. G. Moore on infant mortality on March 9th, 14th, and 16th, the Lumleian lectures by Dr. F. E. Batten on polio-encephalo-myelitis on March 30th, April 4th and 6th, and the Oliver-Sharpey lectures by Dr. M. S. Pembrey on the development and regulation of temperature on April 11th and 13th.

Among the fifteen candidates selected by the Council for election into the Royal Society are Dr. J. A. MacWilliam, Professor of Physiology in the University of Aberdeen,

and Sir Leonard Rogers, I.M.S., Professor of Pathology, Medical College, Calcutta. The other candidates include: Dr. D'Arcy W. Thompson, Professor of Natural History, University College, Dundee; Mr. H. H. W. Pearson, Professor of Botany in the South African College, Capetown; and Mr. C. Shearer, Lecturer on Experimental Morphology in the University of Cambridge.

Medical Notes in Parliament.

Central Medical War Committee.

IN the official reports for February 29th the following questions and answers with reference to the Central Medical War Committee appear:

Mr. King asked: By what authority is the Central Medical War Committee compelling all single medical men of military age, under threat of conscription, to enrol themselves as ready to enter the Royal Army Medical Corps and to place their services at the disposal of this Committee, acting under the direction of the War Office?

Mr. Tennant: The Committee referred to is taking no such action as is alleged in the question. It has circularized medical men in England and Wales, explaining and emphasizing the need of more doctors for the R.A.M.C., and it has brought to their notice an enrolment scheme under which any man below 45 years of age who is willing to take a commission (if offered him) in the R.A.M.C. can secure that his application will be taken up by the War Office at the most suitable time, regard being had both to his particular circumstances and to the medical needs of the civil population in the area where he practises. In all these activities the Committee has been giving very valuable assistance to the War Office, and has been working in intimate relations with the various Government departments concerned.

Mr. King asked the Under Secretary of State for War whether the Central Medical War Committee, whose members are appointed, elected, or co-opted by the British Medical Association, is regarded as truly representative of the whole medical profession; whether he is aware that there are numbers of medical men who are not members of that Association; and whether the doctors who are needed to attend to the civil population are receiving by this arrangement adequate consideration.

Mr. Tennant referred to the answer he gave to a similar question by Mr. Shirley Benn on January 12th (see BRITISH MEDICAL JOURNAL, January 22nd, 1916, p. 140), and continued: I need only add to-day that since that date the Committee has been still further strengthened, and that the civilian aspects of the whole matter, to which the hon. member refers in the concluding paragraph of his question, are amongst the main preoccupations of the Committee working in conjunction with the Government departments involved.

Mr. King asked the Under Secretary of State for War whether, in view of the failure of the Army Medical Department to utilize effectively the medical services which have been freely offered to the army, it is the present policy of the Government to permit the Central Medical War Committee to portion out the supply of medical aid to the industrial community, including munition workers, upon whose energy we are so dependent; and whether, in order to secure the health of the civilian population, the medical profession will in future be classed, like clergymen, as a reserved occupation.

Mr. Tennant: No, sir, I am not aware of any such failure. Such a word seems quite out of place in commenting on the work of the Royal Army Medical Corps. The Committee referred to has collected valuable information as to the existing and prospective provision of medical services for the industrial community, and is endeavouring to assist various members of the profession in bringing about such rearrangements and co-operation as may facilitate the most effective distribution of those services where needed. Information as to the present condition of medical provision in England does not afford any grounds for resorting to the sweeping measures suggested in the concluding paragraph of the hon. member's question.

War.

Employment of Medical Staffs.—In reply to Mr. Lynch, Mr. Tennant said that civilian medical officers were employed to a very small extent in Territorial general hospitals, which were staffed by officers of the Territorial Force. The number mobilized varied with the number of patients in the wards. The number of medical officers in the base hospitals in France could not be reduced, as the military authorities considered that the number now so employed had reached an irreducible minimum. Mr. Lynch also asked whether a certain number of medical officers were attached to each division and their services limited exclusively to it; or whether, when a single division was engaged in a struggle so protracted that its medical officers and staff were exhausted, medical officers from a neighbouring division not engaged could be drafted into the exhausted division. Mr. Tennant said that this course was followed. It was the duty of the higher military authorities to distribute the medical officers under their command so as to meet the various exigencies which might arise. The watertight compartment arrangement was obviously undesirable. He added, in reply to another question, that he had no knowledge of an instance in which some medical officers were employed for fifty-two hours at a stretch, whilst those of another division were unemployed. Movable hospitals or a closely connected series of hospitals within a short distance of the firing line had been in use for many months.

Army Medical Advisory Board.—In reply to Mr. Lynch, Mr. Tennant stated that the unofficial members of the Advisory Board for Army Medical Services were Professor Kenwood, Sir John Rose Bradford, Professor Leonard Hill, Sir Anthony Bowlby, and Sir Charles Cameron. Sir Anthony Bowlby and Sir John Rose Bradford were on the Board as representing surgical and medical knowledge respectively, and not as representatives of what Mr. Lynch had called "civilian interests."

Theological and Medical Students.—Mr. Robinson asked, on February 29th, whether the exemption of students preparing for the Roman Catholic priesthood would be extended to other theological students, and Mr. Snowden whether the exemption would be given to medical students. Mr. Tennant said that instructions were being prepared under which theological students of all religious denominations would be treated alike. No alteration had been made in the decisions already announced in reference to medical students. The regulations had been framed upon the same lines as those for theological students; if there were any distinction, perhaps the treatment of the medical student was the more generous.

Blinded Soldiers and Sailors.—Mr. Tennant has given the following statistics as to the number of officers, non-commissioned officers, and men discharged from the army for blindness, which he had obtained from Mr. C. Arthur Pearson, chairman of the Blinded Soldiers' and Sailors' Care Committee, who, as Mr. Tennant said, has done admirable work. The total number of non-commissioned officers and men was 156 (English 122, Irish 16, Scottish 15, Welsh 3). The number of British officers was 9 (English 6, Irish 2, Welsh 1). Dr. Macnamara stated that 5 naval officers and men had lost their sight in the war entirely, and, as it was believed, permanently; 2 had been discharged, the one a sapper, R.N.D., with a life pension of 25s. a week, and the other a petty officer, second class, coastguard, with a life pension of 27s. a week; 1 midshipman, 1 ordinary seaman, and 1 boy were still under naval care. One private, Royal Fleet Reserve, had lost the sight of one eye, and that of the other was so affected that the man was practically blind. He was receiving a pension of 26s. 2d. a week, and his case would be reconsidered in six months. The question whether men who had been blinded would be able to earn anything could only be settled when their aptitude for acquiring knowledge as blind men had been gauged, and this would be a matter for the Statutory Committee of the Royal Patriotic Fund Corporation, on whom the responsibility for finding employment for disabled sailors and soldiers had been placed by Parliament.

Nervous Shock.—In reply to Mr. King, the Under Secretary of State for the Home Department (Mr. Brace) stated, on February 23rd, that no further facilities were being offered through the Board of Control for the accommodation and treatment of nerve-shaken soldiers, as no further accommodation could be spared. At the request of the War Office, the completion of the new Hampshire Asylum at Park Prewett was being expedited with a view to its being equipped and staffed by the military authorities as a

temporary war hospital. The Board of Control did not exercise supervision over any military hospitals. Visits that it had made for many years to a special section of Netley Hospital, and more recently to temporarily adapted hospitals for nerve shaken soldiers, including the Maudsley Hospital at Denmark Hill, had been made at the request of the military authorities. The responsibility for the treatment of the soldiers in question rested entirely with the military authorities, and not with any asylum authorities. On February 24th, in reply to Mr. Butcher, who asked whether a special hospital had been established for these cases, Mr. Tennant said that they were being treated in the neurological section of the Territorial General Hospitals, in the Springfield War Hospital, Wandsworth, and the Red Cross Military Hospital, Maghull, near Liverpool. The present arrangements were satisfactory and it was not proposed to alter them.

Hospital Beds in London.—In reply to a question on February 29th, Mr. Tennant stated that on February 12th, 1916, there were in military hospitals in London 2,437 wounded soldiers; in auxiliary hospitals 1,267; and in civil hospitals 578. There were 5,346 vacant beds.

Standard of Vision.—Mr. Tennant informed Mr. Duncan Miller, on February 29th, that the vision of applicants for commissions in the army must not be below $\frac{6}{24}$ without glasses, and after correction with glasses it must be normal in the better eye and $\frac{6}{12}$ in the other. For candidates in the Special Reserve of Officers the standard required is as just stated, except that vision without glasses in each eye must not be below $\frac{6}{36}$. There is no special standard required for active service as distinct from home service.

Military Service Act.—The following are notes of replies to various questions in the House of Commons on February 29th:

Mr. Tennant said that it was not at present proposed to follow the example of enemy countries by extending the age for enlistment to 45, but there was power to extend the age limit to the extent which might be necessary. A single man of military age discharged from the Territorial Force on grounds of ill health, or on completion of his period of service, was excepted from the provisions of the Military Service Act, 1916. The production of a certificate issued to a man by a doctor employed by the military authorities, showing that the man had been rejected, was sufficient to relieve the man from liability to military service under the Act, provided the authorities were satisfied that the certificate was really issued to the man in question and was issued since August 14th, 1915. The question of reserving plumbers from recruiting owing to the importance of their work to the public health, was under consideration. It was expedient that a man should be vaccinated or revaccinated, but if he did not sign an undertaking to be vaccinated, no pressure was to be brought to bear upon him if he had conscientious objections. The present arrangements were provisional for the period of the war only. Dr. Addison (Parliamentary Secretary to the Munitions Department) said that a certificate rightfully held by a workman in a controlled establishment, with a war badge, on March 1st would be valid as a certificate of exemption under the Military Service Act. The wife of a man married since November 2nd and now called up would, Mr. Forster stated, be entitled to receive separation allowances. Mr. Long stated that twenty-five appeal tribunals, representing counties or parts of counties, had been set up, and the remainder, together with the central tribunal, would, he hoped, very shortly be constituted.

Pensions for Discharged Soldiers.—In the House of Lords on February 29th Viscount Peel raised the question of pensions and allowances to soldiers discharged from the army on account of wounds and diseases contracted or developed on service, and urged that the stipulation that in order to entitle a man to a pension his disablement must be due wholly to the war was too severe. Lord Beresford said that men discharged from the army were left for weeks at what was for them the most critical period without pensions; he suggested that pay and allowances should be continued until the pension was fixed, that the gratuity of £2 should be given to the man immediately on discharge; that back pay should be paid on discharge, and that pensions should be equalized. The Paymaster-General (Lord Newton) said that the Chelsea Commissioners who administered the pay pension warrant were uniformly sympathetic to the disabled soldier, but an enormous amount of work had been thrown upon them, and unfortunately a large number of the men made no effort to obtain employment. There were numerous instances of pensions having been awarded to men who had hardly performed any military service. With regard to the allegation that the War Office did not recognize tuberculosis and frost bite as being due to military service, he said that last January 87 cases of tuberculosis contracted in France were dealt with at Chelsea and pensions awarded in 79, the remaining 8 being still under consideration. The allegation with regard to frost-bite was founded on a pure fiction related in a police court. He admitted that there were cases of hardship, and it was to deal with such that the Statutory Committee had been created. Where military service had brought to light a latent or constitutional disability the practice was to give a small pension under an earlier warrant. The continued conflict which went on was due to the fact that vast numbers of physically unfit men had been recruited, but such a condition of things was inseparable from the voluntary system, for the Government had to choose from among the men who offered. In one battalion no fewer than sixty men had been invalided who had practically had no military service. The total amount paid in pensions for disabilities incurred during the war was £1,500,000 a year, and if the war lasted to March 31st, 1917, this amount would rise to £7,500,000. If all men discharged received pensions the amounts would be £2,250,000 and £11,360,000 respectively. The Marquess of Lansdowne said that the fact could not be disguised that in a great many cases medical examinations had been conducted with culpable negligence and laxity, and he was not prepared to say that when a man had been formally accepted in the army by responsible officials of the State, he could afterwards be mulcted because those officials failed to perform their duty with the amount of care reasonably to be expected from them. In reply to an inquiry, the Marquess of Crewe said that the Statutory Committee had already appointed certain subcommittees, which were preparing a model scheme. The statutory subcommittees would be appointed within a few days. At present the work of looking after disabled men was being continued by the voluntary organizations, which were doing it well, and the Statutory Committee would maintain permanent relations with them. From June, 1915, to the middle of January, 1916, the names of 23,000 men were received by the Board of Trade from the War Office and the Admiralty; of these 13,000 applied to the Labour Exchanges for help in finding employment; 5,400 found places through the exchanges; 1,439 were still on the register, but close on 6,000 had cancelled their applications, no doubt in many cases because they found they were not fit to take up any kind of serious employment, and in others because they had found work otherwise.

Midwives (Scotland) Act.—In reply to a question by Mr. Watt, who asked whether the Central Midwives Board (Scotland) had power to spend money with the right to tax municipalities and other local authorities for any deficit between its income and expenditure, Mr. McKinnon Wood referred to Section 13 of the Act, which provides that if the annual official statement shows a balance against the Board and the accounts are approved by the Privy Council, the Board may apportion such balance between the local supervising authorities in proportion to the populations of their districts as ascertained at the last preceding census. Mr. Wood said that, judging from the experience of the working of the English Act, there appeared no likelihood of any immediate or substantial claim upon local authorities.

ON January 24th the President of the United States received a deputation consisting of the President of the American Medical Association, Dr. W. L. Rodman, and the presidents of fourteen State medical societies, to present a formal request that in any new legislation for the defence of the country the medical departments of the army should be treated with equity, and be increased in proper proportion to the military needs as finally determined. It was therefore urged that a trained corps on a scale sufficient for peace needs and for any other eventualities should be created. Urgent messages were submitted from the presidents of the medical societies of all the other States of the Union not represented in the deputation, supporting its action and calling for medical preparedness. The President promised to consider the matter.

THE WAR.

A GIANT DISINFECTOR.

(From a Correspondent in Northern France.)

IN a war when everything is on so large a scale one's perception perhaps gets a little blunted. Otherwise I suppose I should have already mentioned a super-dreadnought in the way of mobile disinfectors that is at work out here. It is some months since I first saw a specimen, but only recently that I realized its strong points. These are its durability, the effectiveness with which it does its work, and the amount of this that it is capable of completing within a relatively short time.

In its general appearance it recalls a brewer's dray carrying two extra large barrels. The dray is a flat-topped motor lorry whose chassis is supplied not with a petrol, but a steam-driven engine. The two hogsheads or barrels are the bodies of twin disinfectors built upon the Thresh principle and capable of being used either separately or simultaneously. They are connected by piping with the engine of the lorry, and all that is necessary to set them in action is to cut off the steam from the driving cylinders, and turn it into the jackets of the disinfecting chambers. Consequently the disinfector is ready for action the moment a journey has been completed, and of course can be left standing, but still in use, for an unlimited time, at any place to which it has been brought. The chamber of each twin has a capacity of 60 cubic feet. The joint capacity is therefore nearly three times that of an ordinary mobile Thresh apparatus, such as has long been more or less familiar in sanitary work in Great Britain.

The construction, however, of this giant—which is capable of dealing with the whole of the blankets of a battalion within a limit of two ordinary working days—was, I understand, originally due less to a desire for larger Thresh disinfectors than those at first in use than for a type which would stand the wear and tear on active service more satisfactorily. The original pattern was attached to a horse-driven vehicle with iron shod wheels, and this, when driven over roads so rough as are many of those in Northern France and Flanders, shook so much that pipe-joints and steam-tight doors soon became defective. The chassis on which the present machine is carried has, like all other lorries, twin back wheels with solid rubber tyres. The vibration, therefore, is reduced to a minimum provided the pace at which it is driven does not exceed ten or twelve miles an hour.

I understand that quite a large number of divisions are now supplied with disinfectors of this type.

INDICATIONS FOR AMPUTATION.

IT appears from a recent address by Professor Albrecht[1] at a meeting of war surgeons that the Austrian army surgeons have been accused, not only by the lay public, but even by their civilian colleagues, of performing too many amputations. Professor Albrecht indignantly denied these accusations. That surgeons in the interior did not find it necessary to amputate was obviously due to the fact that patients in need of amputation either died at the front or were operated on there. He admitted, however, that the decision for or against amputation was often one of the most difficult problems of war surgery; he had never sacrificed a limb needlessly, but he had occasionally regretted that he had not amputated, or had deferred the operation too long. During eight weeks he had treated about 2,500 patients, most of whose wounds were severe, and of the 240 operations 18, or 8 per cent., were amputations.

Gangrene due to Tourniquets and Bandages.

From time to time he had seen cases of gangrene provoked by the constriction of bandages. Rubber tubing tied round a limb to arrest haemorrhage, uncontrollable by other means, was the commonest cause. The surgeon who had applied such a tourniquet should not let the patient be transferred elsewhere unless it were absolutely certain that he would be under medical care again within three hours. The patient who had perforce to be transferred under these conditions should be liberally labelled "rubber tourniquet." Another fatal mistake was the changing of the outer dressings only; no dressing should be applied until the wound had been freely exposed. How fatal the neglect of this precaution might be was illustrated by the following case:

Among a convoy of severely wounded was a patient whose appearance was miserable. He was exceedingly restless, and complained of excruciating pain. A projectile had passed through the upper third of the right humerus, and around the arm and shoulder a spica bandage had been secured. The arm was gangrenous, and there was oedema encroaching on the right side of the neck. After the spica had been removed a second, circular bandage was found to have been applied to the upper third of the arm. Under this bandage again a rubber tourniquet was found, encircling the arm just below the shoulder. This tourniquet had been in place forty hours. The humerus was enucleated, but the patient died next day.

Occasionally plaster-of-Paris bandages were secured too firmly, and not watched closely enough. It was a mistake ever to let a patient be moved elsewhere directly after a plaster-of-Paris dressing had been applied. The case should be kept under observation for the first forty-eight hours by the surgeon who had applied the dressing. The neglect of this precaution might provoke gangrene, and in November, 1914, Professor Albrecht had to amputate the arm of a patient, the diaphysis of whose humerus had been fractured by a rifle bullet. A plaster-of-Paris dressing had been applied, and when he reached hospital gangrene of the forearm had developed. Another source of danger were starch bandages (Organtin-Stärkebinde) which shrank considerably on drying. Unless the surgeon was careful to interpose plenty of cotton-wool between the margins of this bandage and the limb, gangrene was liable to supervene.

Gangrene due to Wounds of Blood Vessels.

At the beginning of the campaign he had hoped to practise the latest technique of blood-vessel suture, but in the course of a whole year he had not seen a single case of wound of an artery suitable for this delicate operation. Either the limb was gangrenous or it was the seat of such severe phlegmonous inflammation that this operation was out of the question. The surgeons who attended the wounded at the outset had seldom the necessary time, experience, or instruments.

Gangrene due to Infection.

Fractures and wounds of joints frequently necessitated amputation owing to infection. Among a draft of over 100 severely wounded, which reached Professor Albrecht's hospital in November, 1914, were three whose appearance suggested the final stage of pernicious anaemia. They had been wounded only thirty to forty-eight hours earlier, and none of them had lost much blood. Yet they were very febrile, and lay groaning motionless in bed, with sunken eyes, small rapid pulse, and dry tongue. All three had been wounded by projectiles, which had fractured one or more bones of the lower limbs. Two of them were too debilitated to stand an amputation, and died next day. The third, a powerful young man, was operated on at once. He was febrile a few days after the amputation, but ultimately recovered. Professor Albrecht's suspicion that these patients were infected by haemolytic micro-organisms was confirmed by subsequent observations on similar cases in which a bacteriological examination was made. In one such case the clinical picture was that of the last stage of cholera, although the patient was not suffering from this disease, but from infection with a streptococcus and *Bacillus proteus*. As a rule, infection due to the colon and *proteus* bacilli was less serious than with the Fraenkel-Welch bacillus, and that of malignant oedema. Amputation had been performed only in the most severe cases of gas gangrene. It had been avoided in many cases by the free use of long incisions carried far into the apparently healthy tissue. They were made in the course of the wound, and were carried through the deep fascia to the muscles, so that no crop of anaërobic germs could escape free ventilation. When the general condition was very bad, and the gas gangrene spreading rapidly, amputation, well above the level of the gangrene, was inevitable. From his experience of several cases, he repudiated v. Oettingen's dictum that infection with the *Bacillus pyocyaneus* was in itself an indication for amputation.

[1] *Wien. med. Woch.*, November 6th, 1915.

Septic Wounds of Joints.

The conservative treatment of a suppurating joint required the greatest skill and experience. Provided the patient's general appearance and appetite were good, the tongue was moist, and the action of the heart satisfactory, fever did not of itself warrant amputation. But if the pulse became more and more rapid, weak and irregular, no time should be lost. Special importance was to be attached to irregularity of the pulse as a warning not to delay operating. The problems arising in connexion with amputations required such skill and experience that the Austrian army would do well to follow the example of the German army and provide a consulting surgeon for every army corps.

PROPORTION OF RECOVERIES AMONG THE WOUNDED.

A recently published report embodying the statistics of a large *hôpital de triage* (sorting hospital) at Bordeaux gives some interesting figures. The hospital in question received in twelve months 64,385 wounded; of these 38,902 (60 per cent.) were able to rejoin their regiments after treatment. To this number must be added those who rejoined their regiments after a furlough for convalescence, 18 per cent. The remainder comprises two categories of men, namely, those who are set back temporarily and are subject to periodical re-examination, and those who are discharged altogether. The former of these two categories accounts for 15.45 per cent. and the latter, the discharged men, to only 6.55 per cent. of the total. It follows that of the wounded who reached this hospital only just over 6 in a 100 had been rendered permanently unfit for military service.

The German authorities recently claimed that during the first year of war the monthly average percentage of their wounded who were discharged "fit for service" was 89.5, and "discharged or sent on leave" 8.8 per cent.; the deaths were 1.7 per cent. The results of treatment in military hospitals in Great Britain and Ireland during the first year of the war were as follows—died 0.86 per cent., permanently unfit 4.14 per cent., discharged to duty, on furlough or sent to convalescent homes 95 per cent. Such statistics are interesting, but as has been pointed out on previous occasions they do not indicate the ratio of men who have died of wounds to those who have recovered more or less completely. They throw light only on the results in men who reach a certain class of hospitals.

CASUALTIES IN THE MEDICAL SERVICES.

Army.

Killed in Action.

Lieutenant Francis Sidney Mitchell, R.A.M.C., was killed in France on February 15th, aged 26. He was the youngest son of George Mitchell of Ardlui, county Dublin, and was educated at Trinity College, Dublin, where he took the M.B., B.Ch., and B.A.O. in 1915. He had only recently taken a temporary commission in the R.A.M.C., and was attached to the 9th Battalion of the Sussex Regiment when killed.

Lieutenant Bernard Bradley Gough, R.A.M.C., was killed in France on February 16th. He was educated at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1897, after which he acted as clinical assistant in the medical wards at Guy's, and as house-surgeon of the General Infirmary, Burton-on-Trent. He then went into practice at Compton Martin in Somersetshire, near Bristol, where he was medical officer and public vaccinator of the Harptree district of the Clutton Union. He was attached to the 8th Battalion of the South Staffordshire Regiment.

Died on Service.

Captain John Dykes Wilson, Indian Medical Service, died at Tillicoultry on February 16th. He was educated at Edinburgh University, where he took the M.A. and also the M.B. and Ch.B. in 1909, afterwards studying at Munich, Vienna, and Breslau. After qualifying he acted as house-physician of the Sunderland Royal Infirmary, and as assistant medical officer at the Royal Infirmary, Sheffield. He entered the I.M.S. as lieutenant on July 27th, 1915, and became captain on July 27th, 1915.

Captain Alfred Gwilym Jones, R.A.M.C., died of pneumonia at Rawal Pindi on January 27th. He was educated at Guy's Hospital, and took the M.R.C.S., the L.R.C.P. London, and the M.B. and B.S. London in 1905. After qualifying he filled the posts of house-surgeon, clinical assistant, and out-patient officer at the London Hospital, and then entered the R.A.M.C. as lieutenant on July 31st, 1909, becoming captain on January 31st, 1913.

Captain Peterswald Pattison, R.A.M.C., died in Edinburgh on February 22nd, and was laid to rest in Warriston Cemetery, Edinburgh, on February 25th. Though known intimately to only a very few of his profession, he was unhesitatingly regarded by them as one of the choicest spirits they had ever met. "Pete," as he was always affectionately called by his intimates, graduated M.B., Ch.B. in 1901 at the University of Edinburgh, and though his own tastes lay in the direction of the navy, he relinquished this ideal, deferring to the wishes of his invalid father. Hospital residentships at Stirling and Chester, and several voyages as ship surgeon, preceded his starting practice at Colinton. A character such as his, however, was little suited for the rough-and-tumble of a practitioner's work, and accordingly, after taking the diploma of D.P.H. in 1910, he became school medical officer in Fife, acting also as Assistant M.O.H. for the county. This position he resigned on receiving a commission as temporary lieutenant R.A.M.C. on November 21st, 1914, and he seemed at last to have found the real work suited to his cheery optimism. He was promoted to temporary captain on November 21st, 1915. In France he was attached to the K.O.Y.L.I., in the trenches doing splendid work, but after struggling for weeks against grave symptoms which had begun to appear, he was invalided home in July; his malady was found to be incurable, and he lingered for six months in a nursing home. His was a most lovable nature combined with a strong individuality. Reserved almost to shyness, to his intimates he revealed himself as a man of the staunchest character, with an almost exaggerated sense of duty, of unsurpassable kindliness, and endowed with a quaint and whimsical humour. In health it was his to "labour smiling," and when there came "the day marked for sorrow," he was no less "strong to endure it."

Captain Archibald Thomson Campbell, R.A.M.C., died in Glasgow on February 22nd. He was educated at Glasgow, where he took the M.B. and C.M. in 1886, and was in practice in that city, where he was for some time anaesthetist to the Glasgow Dental Hospital. He took a commission as captain in the Home Hospital Reserve of the R.A.M.C. from August 16th, 1914.

Lieutenant Richard Gavin Brown, R.A.M.C., died at the 5th Southern General Hospital, Portsmouth, on February 14th. He was the only surviving son of Deputy Inspector-General R. Gavin Brown, R.N. He was educated at Aberdeen, where he took the M.B. and Ch.B. in 1903, afterwards serving as assistant medical officer, Lambeth Infirmary, and house-surgeon, Tynemouth Victoria Jubilee Infirmary. He then went into practice at Portsmouth, where he was assistant anaesthetist to the Royal Portsmouth Hospital. He took a temporary commission in the R.A.M.C. from March 29th, 1915, and had recently returned from service in the Gallipoli peninsula.

Wounded.

Captain H. B. Cunningham, R.A.M.C.(T.F.), France.
Captain W. M. Biden, R.A.M.C., Special Reserve, France.

Prisoners of War.

Major Priestley and Captain Vidal, R.A.M.C., released prisoners of war from Germany, reached England on February 23rd. Both were taken in August, 1914, in the retreat from Mons, and had been detained as prisoners ever since. Both had served in the epidemic of typhus among prisoners of various nationalities at the soldiers' prison camp at Wittenberg, in Saxony, where Major W. B. Fry and Captains A. A. Sutcliff and S. Field, all of the R.A.M.C., contracted the disease and died last March and April.

Combatant Officer Killed.

Lieutenant J. Thorp Waite, whose death in action was noted last week under the head of "Deaths among sons of medical men," was himself a member of the medical profession. He was born in 1870 in Halifax,

where his father had long practised. He received his medical education at the University of Edinburgh, and took the Scottish triple qualification in 1896. After practising at home for some time, he joined the West African Medical Staff and served in Northern Nigeria, and later acted as ship surgeon. In 1899 he returned to England, married, and began to practise first in Yorkshire, and then in Pluckley, Kent. He joined the Territorial Force, and took a keen interest in stimulating recruiting for it. He received a commission as lieutenant (combatant) in the 5th Buffs on August 22nd, 1914, and was sent to India. Afterwards he went with the Expeditionary Force to the Persian Gulf, and was killed when serving with the machine gun section of his battalion. He leaves a widow and young son.

DEATHS AMONG SONS OF MEDICAL MEN.

Griffin, Innes Edward, Captain 14th Battalion, Oxford and Bucks Light Infantry, son of the late Dr. Innes Griffin, medical officer of health, Banbury, died of wounds on February 19th. He had just returned to the front after short leave home. His first commission as second lieutenant was dated August 8th, 1914; he was promoted to lieutenant on January 9th, 1915, and to captain last summer.

Hood, George Christie, Lance-Corporal 16th (Public Schools) Battalion, Middlesex Regiment, only son of T. A. F. Hood, M.B., of Ivybank, Blairgowrie, died at No. 33 Casualty Clearing Station, in France, on February 19th, of wounds received on February 15th, aged 21.

CORRECTION.—In the list of casualties published last week the name of Lieutenant John Gillis Butt was incorrectly printed Bute.

NOTES.

HONOURS.

ROYAL NAVY.

AMONG various honours announced by the Admiralty on February 24th, the Distinguished Service Cross was conferred upon Surgeon Alfred Robinson MacMullin, R.N., "for services on January 23rd, 1916, at Serengeti, in East Africa, when he showed remarkable bravery in searching for and rescuing a severely wounded officer under heavy machine gun and rifle fire close to concealed enemy entrenchments."

FOREIGN ORDERS.

The *London Gazette* of February 24th announced the names of a number of officers to whom His Majesty had given permission to receive and wear certain French and Belgian orders conferred on them for services in the war. Among them were the following medical officers:

France.

Commander of the Legion of Honour.—Surgeon-General W. G. Macpherson, C.B., C.M.G., A.M.S., Surgeon-General T. P. Woodhouse, C.B., A.M.S., Colonel Sir W. B. Leishman, C.B., A.M.S.

Officer of the Legion of Honour.—Colonel C. H. Burtchaell, C.M.G., A.M.S.

Chevalier of the Legion of Honour.—Major W. R. Battye, D.S.O., I.M.S., Major R. B. Black, Reserve of Officers, R.A.M.C., Major J. S. Pascoe, R.A.M.C., Major E. Ryan, D.S.O., R.A.M.C., Major J. W. West, R.A.M.C., Captain F. Casement, R.A.M.C., Captain D. M. McWhae, Australian A.M.C., Major J. Morley, R.A.M.C.(T.F.), Captain J. W. Craven, R.A.M.C.(T.F.).

The Croix de Guerre and the Médaille Militaire have been conferred upon a large number of British Warrant Officers, N.C.O.'s, and men, among whom were the following members of the medical services. All are R.A.M.C. unless otherwise stated:

Croix de Guerre.—Quartermaster-Sergeant R. E. Halford, Corporal E. Allen (T.F.), Driver J. C. Comyns (Australian A.M.C.), Private H. W. Strong (Australian A.M.C.), Bearer Beni (Indian Army Bearer Corps).

Médaille Militaire.—Second-class Assistant Surgeon G. C. Rehling (I.S.M.D.), Quartermaster-Sergeants G. Carroll (T.F.), H. W. Lee, and J. E. Newton, Staff Sergeants W. H. Mattison and J. Rouse, Sergeants W. Brooks (T.F.), and W. D. Gibb (T.F.), Corporal G. E Thain, Driver E. Smith (R.F.A., formerly R.A.M.C.), and Private W. Adamson (T.F).

Belgium.

Commander of the Order of Leopold.—Surgeon-General Sir A. T. Sloggett, K.C.B., A.M.S.

Officer of the Order of Leopold.—Colonel S. G. Moores, C.B., A.M.S.

Commander of the Order of the Crown.—Surgeon-General R. Porter, A.M.S.

Officer of the Order of the Crown.—Lieutenant-Colonel S. L. Cummins, C.M.G., R.A.M.C., Lieutenant-Colonel A. Chopping, C.M.G., R.A.M.C.

MEDICAL OFFICERS WANTED.

2nd London Sanitary Company R.A.M.C.(T.).

There are some vacancies for commissions in this company. Gentlemen with public health experience or holding the D.P.H. preferred. There is a prospect of active service abroad after a brief period of training. Apply, Captain F. G. Caley, O.C. 2nd London Sanitary Company, Duke of York's Head Quarters, Chelsea, S.W.

3/3rd City of London Field Ambulance, R.A.M.C.(T.F.).

Three or four medical officers (Imperial Service) are required for this ambulance, promotion to captain at the end of six months' service. Very economical mess. Field allowance, in addition to pay, is being drawn. Applications should be sent to the Commanding Officer, Beech Hill, Hadley Wood, Barnet.

South Wales Mounted Brigade.

There is a vacancy for a medical officer in the Mounted Field Ambulance and also in one of the Yeomanry regiments of the 2/1st South Wales Mounted Brigade. Applications should be sent to Lieutenant-Colonel Herbert Jones, S.M.O., Bulcamp, Blythburgh, Halesworth.

England and Wales.

IT was announced a couple of months ago that a memorial fund was being raised to commemorate the devoted and faithful service at the Manchester Royal Infirmary of Sister French, who died last November. It is proposed to place a tablet in her old wards in S.I. Unit, and a small stained-glass window in the infirmary chapel. We have received a letter from Mr. G. A. Wright, consulting surgeon, and Mr. J. Howson Ray, surgeon to the Infirmary, in which they say: "We believe that many former students of the Manchester Royal Infirmary would like to join in this memorial, and we invite donations, which may be forwarded to the general superintendent and secretary, by whom all contributions will be gladly acknowledged."

At a meeting of the Manchester Board of Guardians last week it was decided to accept the proposal of the War Office, which had requested that a large part of the Withington Hospital should be devoted to the care of sick and wounded soldiers, the guardians continuing the administration of the place, as they already possess a trained staff. Arrangements are accordingly being made for the transfer of something like 1,200 of the present inmates to other institutions. The Booth Hall Infirmary will be vacated by the military authorities and is to be used for the housing of the sick children, while the two other institutions at Crumpsall will be utilized for other cases. It is expected that the new arrangements will provide accommodation for 2,000 sick and wounded soldiers, in place of 400, as at present.

CENTRAL COUNCIL FOR DISTRICT NURSING IN LONDON.

The Central Council for District Nursing in London, founded in 1914 as the result of a conference under the auspices of the Local Government Board, held its annual meeting on February 25th, when Sir William Collins presided. The annual report stated that the Ranyard Nurses and the associations affiliated to Queen Victoria's Jubilee Institute reported that there had been an unexpected decrease of work in certain areas, at least so far as ordinary acute cases were concerned; this was ascribed to the fact that people were better paid and better fed. The executive committee reported that at the next meeting a statement would be made as to the desirability of extending the Council's work beyond the area of the County of London, and that a subcommittee was now engaged in investigating the adequacy and efficiency of district nursing in various London boroughs. A proposal was approved to publish a directory and guide to district nursing whereby medical practitioners, hospital authorities, and others might readily ascertain where to apply for the services of a district nurse in any part of the metropolis. It was explained that the preparation of the scheme for the district nursing of measles, German measles, and whooping-cough, which the executive committee had been directed to draw up,[1] had been delayed to some extent by the order of the Local Government Board for the compulsory notification of measles, which conferred upon any borough council the power to

[1] BRITISH MEDICAL JOURNAL, July 24th, 1915.

provide, or contract with any person to provide, a temporary supply of medicine and medical assistance for the poorer inhabitants of the district. An arrangement whereby a borough council could contract with a district nursing association would be both economical and efficient. Not every case would need actual nursing, as distinct from advice and supervision, by a district nurse, and in making the selection of cases the M.O.H. would be assisted by the knowledge of the families and the local circumstances in the possession of the education and other local authorities. On the subject of medical attendance it is stated categorically that "the district nurse should under no circumstances assume any responsibility for medical treatment." It was her duty to advise the parents that a medical man should be called in. She should continue to urge the need for calling in the doctor, and in the meantime do her best for the patient. The memorandum prepared by the medical officer of the Local Government Board was quoted to the effect that, "without taking medical responsibility, the nurse can do much to prevent complications." Various suggestions were made as to the desirability of providing beforehand for medical attendance by means of provident dispensaries and the like. In the absence of all other provisions application might be made to a relieving officer, or resort might be had to a charitable fund, raised through the District Nursing Association, out of which the payment to medical men could be made. So far as admission to hospital was concerned, the nurse was only affected in that it was her duty to select the more urgent and necessitous cases for hospital treatment. In an appendix to the draft, suggestions were put forward for the modification of district nursing rules as an addendum to any existing rule barring the nursing of infectious cases. These ordain that the nurse shall carry out all instructions given by the medical attendant for the avoidance of risk of conveying infection to her other patients; in the absence of such instructions she shall comply with the rules of the committee of her association; she shall assist the sanitary authorities as far as possible in preventing the spread of the infection, and shall not visit a maternity case without the sanction of a medical practitioner. An addendum is also suggested to existing rules regarding the nursing of cases to which no practitioner has been called. This requires that the nurse shall urge the parent to call in a doctor, explaining, especially as regards children under 5, the serious dangers which may develop, and that in the event of continued neglect on the part of the parent, she shall report the case to the M.O.H., and also to her superintendent, and, pending their instructions, shall continue to urge the parent to obtain medical attention, at the same time doing her best for the patient by homely advice and household management. (The draft of the scheme is published by P. S. King and Co., Limited, price 2d.)

On the motion of Sir Arthur Downes an executive committee of twenty-five members were reappointed, the medical representatives being Dr. William Butler, Dr. Ronald Carter, Sir William Church, Sir Arthur Downes, Dr. C. J. Harrison, Dr. G. F. McCleary, Sir Shirley Murphy, Dr. B. A. Richmond, and Mr. E. B. Turner.

Tuberculosis in London.

It was stated at the meeting of the London County Council on February 22nd that a model scheme for the formation of tuberculosis care committees, to form part of the organization of each tuberculosis dispensary, which was approved some eight months ago, would be considerably delayed owing to the increasing demands made on voluntary workers. The Council agreed to the formation of interim care committees, to include existing local dispensary care committees, the M.O.H. for the borough, the tuberculosis officer, local social workers, representatives of local hospitals, and other persons contemplated in the model scheme as originally put forward. The Public Health Committee stated that, owing to various causes, the scheme for the residential treatment of tuberculosis in London had not developed as rapidly as was anticipated. It seemed probable that, apart from the beds supplied by the Metropolitan Asylums Board, not more than 231 beds for children and 100 beds for adults would come into use during the current year. On this basis the estimated cost of residential treatment would be £16,800.

Medical Education of Women in Wales.

The first public meeting of a committee formed to promote the medical training of women in Wales was held at the University College of South Wales and Monmouthshire last week. Mr. D. Lleufer Thomas, who was in the chair, said that head mistresses stated that girls likely to be successful in a medical career were prevented from embarking on it by the heavy expenses and the long period of training. There were very few medical scholarships for women, and the object of the committee was to raise a fund to give help to students of exceptional promise to enable them to enter upon a medical course in the medical school of the University College at Cardiff. The fund would be used to assist students mainly in the fourth and subsequent years of their training, and in special cases to make small loans. The committee would take into consideration the academic record, health, personality, and general fitness of the applicants, as well as the financial position of the parents. Mr. Thomas urged that women were specially fitted for posts as medical inspectors of school children and the treatment of defectives, and women; they were also well suited to act as resident medical officers of many institutions. There was also a call for their services in the Crown Colonies and in mission work. The committee proposed to represent to some of the intermediate schools for girls that they should apply to the medical authorities for the recognition of their laboratories as places where biology, as well as physics and chemistry, might be taught, so that girls intending to be medical students might while at school prepare for the preliminary scientific examinations. Principal Griffiths said that the movement had not originated in the college, which, however, welcomed it, as there was a general feeling that something of the kind was wanted. Professor Hepburn, dean of the faculty of medicine, University College, Cardiff, also supported the proposal, and a resolution in the sense indicated was carried unanimously after Sir Henry R. Reichel, principal of the University College of North Wales, Bangor, had urged that a loan fund would be preferable to the establishment of scholarships. It was announced that Lord Kenyon had consented to be president of the committee, and a number of vice-presidents were chosen, including the Countess of Plymouth and Ladies Aberdare, Tredegar, and Varney. Miss Mabel Howell (Cardiff) was elected honorary secretary, and Lady Owen Philipps honorary treasurer.

Small-pox and Tuberculosis.

The Salford Insurance Committee has for the third time since the Insurance Act came into operation been placed at a serious disadvantage in dealing with tuberculous patients by the outbreak of small-pox in the borough. For six years before the Insurance Act there had not been a single case of small-pox, and by the permission of the Local Government Board the Public Health Committee was allowed to use the Drinkwater Park Small-pox Hospital for tuberculous patients so long as it was not required for small-pox, and the Insurance Committee by virtue of its contract with the Health Committee had recently about thirty insured persons suffering from tuberculosis in the hospital. On the occurrence, about a fortnight ago of a case of small-pox in Broughton, the medical officer of health first tried to obtain admission for the case into some other small-pox hospital, but no other authority could be found to take it, and it was then necessary at once to turn out all the tuberculous patients from Drinkwater Park Hospital to make room for the small-pox case and for contacts. The Salford Corporation some time ago completed plans for a large new sanatorium at Marple, and the sanction of the Local Government Board had been obtained, but the Treasury stepped in and forbade the work to be commenced at present owing to the war. The Public Health Committee is bound by its contract with the Insurance Committee to do all it can to find accommodation for insured tuberculous patients admitted to sanatorium treatment, and beds have been found for several of the displaced patients at the Crossley Sanatorium and the Bowdon Home, but the majority have had to be sent to their own homes, and to be content with dispensary or domiciliary treatment. No blame can be attached to the local authorities, but it is a most unfortunate thing that for the third time in three years so many insured tuberculous patients, as well as a

number of others non-insured, should have had to be displaced for the sake of a very small number of small-pox cases. Up to the present only four or five cases have occurred, but one has died, and there were a large number of "contacts"; in the best event it will not be possible for any tuberculous cases to be readmitted to the hospital for some weeks, and it appears to be impossible to find accommodation for more than a very limited number at other sanatoriums.

A Public Medical Service.

At the annual meeting of the Leicester subdivision of the Union of Medical Practitioners and of the Leicester Public Medical Service worked in conjunction therewith, it was stated that practically the whole of the medical profession in Leicester are members of the Union and about three-fourths are on the panel for State insured persons and are acting members of the Public Medical Service. The Union is intended to ensure uniform action to be taken in the interests of medical men, to effect insurances, and to collect debts on favourable terms. The meeting adopted a scheme which had been carefully considered to provide for the attendance on patients of doctors engaged on military service and to safeguard the interests of the absentee doctors.

The subscribers to the Public Medical Service, chiefly women and children, number about 43,500. In addition, the friendly societies in Leicester have made arrangements for their members to avail themselves of the services of the doctors on the Public Medical Service list. The chief societies have their own dispensaries and pay certain rates per annum to the Public Medical Service for medical attendance on their uninsured members and their wives and children, who are included in the above total of 43,500, and in addition for about 12,000 of their members who are State-insured. The service has a central dispensary and offices with eight branch dispensaries, and there are eye, nose, ear, and throat and dental departments in connexion with it; subscribers may consult specialists on payment of moderate fees. Arrangements have been made with the local education authority for the purposes of the school clinic, and 1,644 school cases have been treated during the year. Also there is an arrangement with the board of guardians whereby the necessary medicines for the outdoor sick poor of Leicester are dispensed by the Public Medical Service. The total number of prescriptions dispensed for the various sections during the year was nearly 230,000. The sum collected from subscribers to the service was £8,558, and payments from friendly societies, guardians, and other sources, brought the total income for the year to over £15,000. After all expenses had been defrayed, the sum of £11,430 was distributed among the medical officers and specialists for attendance on subscribers.

It would be of interest to know how these payments compare with private practice and with the sums received by panel practitioners for insured persons.

Ireland.

Sir Charles Cameron has published some statistics as to the work of food inspection in Dublin, and to show their significance has compared them with similar work in Sheffield, the population of Dublin being 310,467 and that of Sheffield 476,971. The number of analyses of food and drugs in Dublin was 4,075, in Sheffield 1,037; 146 prosecutions were instituted in Dublin, and the penalties imposed amounted to £386 7s. 6d.; in Sheffield the number of prosecutions was 35, and the penalties amounted to £39 17s. 6d.

The fortieth annual report of the Incorporated Orthopaedic Hospital of Ireland, read to the annual meeting last week, stated that the hospital now had accommodation for 79 patients in Upper Merrion Street and 66 in the country at Templeogue. During the year 162 children were under treatment, 52 were discharged cured, 30 improved, and only 1 died; 75 remained under treatment. The average number of beds in daily occupation was 71, and the average residence in hospital 160 days. The annual subscriptions and donations were £177 less than last year. The sum of £692 had been spent during the year on additions and improvements.

Cerebro-spinal Meningitis.

At the last meeting of the Ulster Medical Society, Captain W. J. Wilson, M.D., read a paper on the epidemiology and bacteriology of cerebro-spinal meningitis. He rejected the pleomorphic explanation chiefly advocated by Hort, and advanced evidence in support of the theory that infection by the meningococcus in some way lowered the resistance of the intestinal wall, and allowed secondary infections from the intestine, of which he mentioned several, and gave the agglutination results. In the epidemic of cerebro-spinal fever some years ago Professor Symmers always found the mesenteric glands inflamed. Out of 900 contact cases that Dr. Wilson had examined in soldiers he found eighty carriers, but not one of these developed the disease. Dr. Wilson thanked Dr. Georgina Darling, Lieutenant Purce, Dr. Gardner Robb, and the residents at the Purdysburn Fever Hospital for their valuable help. At the same meeting a number of specimens were shown, and Dr. Calwell read a short paper in which he laid stress on the fact that cardiac murmur was often heard in the supine position, which sometimes entirely, sometimes to a great extent disappeared in the erect. He emphasized the importance of this fact in life assurance and examinations for the services.

Irish Automobile Club and the War.

The report of the Irish Automobile Club is a splendid record of voluntary work done for the benefit of the soldiers, especially the wounded. The club has four ambulances on service in France, and a number of members have had their cars converted into ambulances for use on the arrival of hospital ships in Dublin. A great many members are giving their cars up almost entirely for military purposes. Some months ago the D.D.M.S., Irish Command, sent a letter of thanks to the club, in the course of which he spoke of "the unostentatious way in which the Automobile Club carries out this humane and patriotic self-imposed work." The work done by the members of the club include ambulance service, railway station buffets, reception of wounded soldiers on sick furlough, assistance of recruiting, help to the Army Forage Committee, and the entertainment of soldiers in the Dublin hospitals. Much of the work for the wounded and travelling soldiers was done under very trying conditions, but no matter how bad the weather was at Kingstown Pier or at the North Wall, there were ladies and gentlemen working in the early hours of the morning. No less than 170,000 meals have been provided for soldiers and sailors at these buffets since they were opened.

Cork South Charitable Infirmary.

The report of the South Charitable Infirmary and County Hospital, Cork, for 1915 records another year of successful work. In the medical wards 633 patients passed through the wards; 577 were discharged cured, while 42 died, of whom 22 were hopeless on admission. There were 50 cases of pneumonia, and 4 of these had a fatal ending.

In the surgical wards 675 cases were treated, of whom 608 were discharged cured and 27 died, several of these being young children who succumbed to the shock of severe burns. The large number of 4,115 new cases passed through the extern departments, with a total attendance of 15,607. In the early part of the year the wounded soldiers admitted in October and November of 1914 were all discharged recovered; 30 more wounded were admitted in April, 1915, and two men rescued from the ill-fated *Lusitania* and two seriously injured in the sinking of the *Arabic*.

An interesting incident of the annual meeting at which the report was read was the presence of the new Lord Mayor of Cork, himself a member of the staff of the institution. The Right Honourable T. J. Butterfield was most heartily congratulated on the honour conferred on him by his native city, and wished by his colleagues and friends a very prosperous year of office. Several of the younger members of the medical staff have been accepted for war work, some in the R.A.M.C. and one as civil surgeon at Cork Military Barracks. Much regret was felt at the resignation of Mr. Samuel Henry Newson, as treasurer to the institution, a position he had held for twenty-five consecutive years.

Belfast Health Society.

The report presented to the annual meeting of the Belfast Health Society, held on February 22nd, stated that during 1915 the attendances of mothers and babies at the babies' clubs organized by the society had numbered 8,422, while 8,864 pints of milk had been given to the mothers for their babies. The society had also established a system of "home helps," who, when the mothers were temporarily laid aside, took charge of the house and children. Sir John Byers, in seconding the adoption of the report, which was carried, said that during 1915 no fewer than 924 new babies had been enrolled in the babies' clubs. Many deaths of infants in the first twelve months of life were due to the fact that they were born prematurely and congenitally weak, and that some had the taint of constitutional disease. To improve this state of things the nation required the help of the medical and nursing professions, of public health authorities, and philanthropic organizations such as the Belfast Health Society. Constitutional disease must, he said, be got rid of by a more thorough investigation of the prenatal conditions, and deaths as a result of accident at birth by improving the science of obstetrics and especially by examination of the mother before the time of her confinement.

Scotland.

At the annual meeting of the Royal Victoria Hospital, Dundee, Dr. R. C. Buist, in seconding the adoption of the report, said that the death-rates from tuberculosis and other early killing diseases had gone down, but those from cancer had risen, so that its alleviation was likely to be a problem for the hospital for a long time. Among the new knowledge and new forces becoming available, which sometimes promised a cure and frequent alleviation in cancer after it had passed beyond the surgeon's skill, was radium. A small stock had been placed at the disposal of the Royal Infirmary by a generous donor, but it was not sufficient for what was needed, and there was room for further handsome donations to purchase radium for the use of hospitals in Dundee.

Central Midwives Board for Scotland.

The Privy Council has intimated approval of the appointment of Mr. D. L. Eadie, 50, George Square, Edinburgh, as Secretary to the Central Midwives Board for Scotland. All communications thereanent should be sent to Mr. Eadie at the above address. Several meetings of the board have now been held, and we understand that one of the matters engaging its attention has been that of filling up the two remaining vacancies on the board by the appointment of two midwives. In the Act it is left in the hands of the Lord President of the Council to fill up these places when the number of midwives qualified is sufficient. The position of a midwives board without midwives on it may be felt to be something of the nature of the play of *Hamlet* with the part of the Prince of Denmark omitted. The board in Edinburgh has shown its anxiety to pass as quickly as possible through an incomplete stage in its development, and has, it is understood, petitioned the Lord President to fill up the vacant places. The difficulty is the absence of a midwives roll for Scotland, but it is hoped that as soon as a sufficient number of women have been put on the roll—and there seems no reason why that should not be soon—the two midwives will be chosen and the board completed. It has been further arranged that the two boards, the one for England and that for Scotland, shall exchange minutes.

India.

The London Mission Hospital, Jammalamadugu.

From the annual reports of the London Mission Hospital at Jammalamadugu, in Southern India, for the five years 1910 to 1914 inclusive, it appears that the mission staff consists of two European medical men and a nursing superintendent, with a number of Indian dispensers, dressers, and nurses. A small medical school, with eighteen or twenty students, is carried on in connexion with the hospital. At the beginning of 1910 there were 50 beds in the hospital at head quarters, and two small branch dispensaries had 4 beds each. A third branch was opened in February, 1910, and a fourth in October, 1914, while in November, 1913, Surgeon-General Bannerman, C.S.I., of Madras, opened a new ophthalmic wing at the head quarters hospital; by the end of 1914 there were 79 beds there, and 6 at each of the four branches, providing accommodation for 103 in-patients in all. The total number of in-patients treated in 1910 was 1,006, and in 1914 had risen to 1,229; of out-patients, 14,761 in 1910, rising to 16,203 in 1912, but falling again to 14,621 in 1914. The total number of operations, major and minor, rose from 1,642 in 1910 to 2,819 in 1914. The numbers of the more important operations performed during the whole period of five years were: Cataract extraction, 641; litholapaxy, 20; lithotomy—suprapubic, 15, others, 4; prostatectomy, 6; abdominal operations, 102; malignant tumours, 120. Operation for cataract is done chiefly by Smith's method, extraction in capsule. The great majority of the patients were Hindus, but a considerable number of Mussulmans, and, especially at head quarters, of native Christians, were also treated. We learn from the reports that malaria is uncommon in the tract of country served by the mission, dysentery and tuberculosis common. The mission seems to do much good in an out-of-the-way part of India.

Correspondence.

THE NOTIFICATION OF MEASLES,

Sir,—The letter of Dr. Garrett in your issue of February 19th is interesting from the point of view of a whole-time M.O.H., but the part-time M.O.H. is in a more invidious position.

Formerly the notification of an infectious disease came invariably from a doctor, and the subsequent visit of the M.O.H. was quite impersonal, to deal with the discovery, of the source of the disease, to take steps for the prevention of the spread of the infection, usually by the removal of the case to an infectious hospital, and to attend to any existing sanitary conditions. The regulations of the Local Government Board regarding measles alter the whole situation. As Dr. Garrett says, the chief object of the notification of measles is or ought to be to prevent the death of children from the disease, that is, that they ought to have medical attendance; but there is nothing in the regulations that is effective to this end; it is not stated, though it may be tacitly implied, that it is any part of the duty of a M.O.H. to give personal advice as to what steps should be taken as regards the treatment of a case, even as to whether any treatment by a doctor should be suggested—a more important matter than the discovery of the source of infection which is probably obvious, or than the limitation of the spread of the infection, which may present difficulties.

The difficulties of the part-time M.O.H. are more complicated; if we suppose that the notification arrives from parent or school teacher in respect to a patient in the practice of the M.O.H., and on a visit of inspection their diagnosis proves to be correct and he advises that a doctor be called in, he is obviously placed in the unpleasant position of touting for custom, and the parent may also assume that as the first visit was official and cost nothing, subsequent visits ought to come into the same category or else be dispensed with.

As 95 per cent. of the children who have measles in a rural district never see a doctor, the latter solution would probably be adopted by the parents. Another difficulty that confronts the part-time M.O.H. is that most country practices overlap, and that notifications from parents and school teachers may arrive in respect to people who for various reasons may not previously have selected a doctor, the M.O.H. may then have to decide whether he will suggest himself as a suitable person to attend the case, or be sufficiently magnanimous to pass it on to one of his colleagues, and, if so, which one. The school teacher must always play an important part in the working of the regulations. Since they came into force I have received

one notification from a doctor and five from school teachers of suspected cases, none of which were measles; in four out of the five cases I subsequently discovered that doctors were attending. These cases only involved a journey of nine or ten miles there and back, but had they occurred in other localities they might have involved a journey of fifty miles there and back.

The chief result of the regulations will be to put an enormous amount of extra work on all medical officers of health and their officials without any corresponding result; it is almost impossible to prevent the spread of the infection of measles by a wholesale isolation of children, and it is difficult to see that the regulations will provide for the proper treatment of more than a very small proportion of the cases, as the children below school age will probably not be notified by their parents.—I am, etc.,

A PART-TIME M.O.H.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—In the recent correspondence on the treatment of septic wounds I do not think that sufficient attention has been paid to two important principles which should guide one in the inquiry as to the best method of treating these wounds—namely, antisepsis and osmosis.

Most observers have been satisfied with finding a suitable antiseptic, but they have omitted to take into consideration the necessity of providing for some drying-up process which shall be exerted on the wound from start to finish. For the past year I have been using a 20 to 50 per cent. of ichthyol in glycerine painted on the wound and surrounding skin once daily. This combination fulfils the above mentioned conditions, does not adhere to the surface of the wound, and places the wound in a more favourable condition for healing than other methods. Those who find it difficult to procure ichthyol, or consider it too expensive, can easily substitute some cheaper antiseptic of a non-irritating character.

I am in absolute agreement with Lieutenant-Colonel Primrose as to the undesirability of applying impermeable material over a wound. I have used oiled silk by way of experiment, and soon learnt to discard it. For the first two days it did not appear to exert any marked influence, but if retained longer, healing was invariably delayed.

I am no believer in a wet dressing at any stage in the treatment of a wound; it deserves equal condemnation with oiled silk, etc. Why this antiquated absurdity is still retained any more than drainage tubes in septic wounds is a great mystery to me.

The placing of a septic limb in a bath is to my mind the height of folly; it delays healing indefinitely, and may lead to amputation. I am quite convinced that if ichthyol and glycerine are used in these cases many limbs will be saved at the front and in this country.—I am, etc.,

C. W. DUGGAN,
Military Hospital, Lincoln, Feb. 24th. Major R.A.M.C.

SIR,—Like Dr. Shirlaw, I have often seen the evil effects of the application of dry dressings to septic wounds, and many will hope, with him, that we shall not depart from the principle of using dry dressings for aseptic wounds, and moist dressings covered with impermeable material for all septic injuries.

I have often seen dry dressing removed from a septic wound almost well, but in taking off the dressing a collection of pus was to be seen on the area of the dressing corresponding to the wound, and sometimes a gush of pus. The discharge had not spread laterally in the dressing, as a result of no outside impermeable material. Moreover, the new epithelium at the edges is frequently torn unless time and trouble are spent in moistening the wound.

A septic finger in an early acute stage needs a warm wet dressing (1 in 20 carbolic, 5 per cent. lysol, etc.), covered with oil silk. I have had them in my own person, and know their comfort. After incision wet gauze covered with oiled silk or jaconet is incomparably more comfortable than a dry dressing. A case I visited just after reading Lieutenant-Colonel Primrose's letter was a good illustration. A lady had a tube tied in the gall bladder, and as she complained of the moistened gauze and wool getting dry and the discharge escaping at one edge of the dressing and not soaking into the latter, I directed her to apply jaconet. On my next visit I was met with the remark, "I have had no discomfort from the dressing since the addition of the jaconet"—the dressing had taken up the discharge in a uniform manner.

It is sufficient, in a clean wound covered with gauze and then with layers of aseptic wool, to use the impermeable covering a size smaller than the underlying layers, for the discharge, taking, as it does, the shortest line to the surface, finds its way to the jaconet and then perforce spreads laterally and diffuses itself through the dressing.

There will be numbers who most assuredly will disagree with the statement that "it would be greatly to the advantage of the wounded if impermeable oil silk, etc., were removed from the armamentarium of the army." The economy occasioned by the use of tissue is also a point. Antiseptic wools can be used again so far as those parts untouched by discharge are concerned.

As a wound progresses towards recovery it is true that a layer of non-absorbent wool over moist absorbent wool has much the same action as jaconet, and pus meeting it is thrown laterally. I remember reading a very interesting article by a Norwegian surgeon, wherein he spoke of hydrophil and hydrophobe wool, the former being placed next the wound and the latter outside all.—I am, etc.,

Norwich, Feb. 28th. HENRY C. NANCE, F.R.C.S.Eng.

BREADS FOR CHILDREN.

SIR,—By the theory of existence of vitamines in all cereals, the Japanese scientists "builded better than they knew," for not only does the discovery reveal the cause of beri-beri, but goes a long way towards solving our own food problem. The manifest deterioration in physique of our rural population, the wretched teeth possessed by 90 per cent. of the children, the prevalence of various developmental defects, can only be accounted for by insufficient nourishment, and the most unobservant must be startled by the fact that, in spite of a lowered standard, more than 30 per cent. of the young men attesting have been rejected as medically unfit. When we reflect that bread made of roller-milled flour—destitute of vitamines—with a little cheap jam, forms the chief dietary of the majority of these children, the inference is obvious that henceforth the white bread in general use may be fairly classed with polished rice, for besides being poor in fats, and minus nearly two-thirds of its minerals, it has been deprived of the all-important germ, which is sold to the makers of the various "germ breads" on the market. As to remedies, the whole matter hinges on the methods of milling; it resolves itself into a question of roller *v.* stone compression or grinding. There can be no doubt as to the answer, for rollers have the fatal defect of flattening the glutinous germs into discs, which cannot pass through the screen and are lost, whereas with stone mills everything is retained. The profession surely ought no longer to acquiesce in this state of affairs. It is our duty, in the matter of food, to insist on nothing short of the best, nor rest content till there is placed within the reach of every man, woman, and child in the realm bread which shall be in fact, as well as in name, the "staff of life."—I am, etc.,

Brockenhurst, Feb. 28th. HENRY J. HIBBERD.

AUSCULTATION OF THE HEART OF THE RECRUIT.

SIR,—In your issue of November 20th Sir James Kingston Fowler gave extracts from an article of his written some years ago. There was much in these extracts which will appeal to every one, but on one point there must be a difference of opinion. It is when he says:

> A murmur which suddenly and completely disappears when the patient lies down, provided there is not at the same time any marked alteration in the pulse-rate, is almost certainly due to organic disease of a valve.

And again:

> Functional and false murmurs often disappear when the patient lies down, whilst an organic murmur, especially that of mitral stenosis, may be only audible in that position.

The letter called forth one from Sir James Mackenzie. With the subject of their difference of opinion I am not here concerned, but I see in your issue of December 25th, 1915, p. 943, that Sir James Kingston Fowler repeats his belief that "Loud murmurs often disappear when the patient lies down."

Surely, as an indication of some leakage or obstruction

which throws more work on the heart muscle, murmurs have their place, and it is as important as ever to distinguish between those murmurs produced by an organic valvular lesion and those due to some temporary and passing condition. In endeavouring to make this distinction, the effect of posture is of great importance, and I would venture to say that the so-called "functional murmurs"—which, by the way, are always systolic in time—tend to be louder in the horizontal posture, and become less audible and even disappear completely in the vertical. Systolic bruits due to organic disease vary in the same way with posture, but to a much less extent. It will be seen that this is the exact opposite to what Sir James Kingston Fowler states, and I can only leave it to your readers to decide. I would ask any doubter to go round any ward and listen in the second and third left interspaces close to the sternum of patient after patient, each patient being recumbent. A systolic murmur will be heard in a great many of them, and it will be especially loud at the end of expiration. In each instance, when a murmur has been detected, get the patient to sit or stand up, and it will be noticed that the murmur will tend to lessen, or even disappear. This pulmonary systolic murmur is, of course, the commonest type of "functional" murmur, but the effect of posture will be also found to apply to those in other areas. These very common functional murmurs are of little or no significance, and have no bearing on the patient or the recruit's "fitness" for active service. If it were only generally realized that they mean nothing, soldiers who come to the base hospital labelled "valvular disease of the heart" would be able to remain with their units, and thus they would be saved much worry and the Government much expense. In the same way many recruits would be accepted who at present are rejected.

May I add in closing how thoroughly I agree with the view that all men should be examined both in the recumbent and in the vertical postures? This not so much for its bearings on murmurs as its effect on the heart-rate. In all doubtful cases they should also be examined after a definite amount of exercise. This routine is always carried out in this base hospital, and is constantly found to be of great value.—I am, etc.,

ROBERT DAWSON RUDOLF, M.D.Edin.,
F.R.C.P., Lieut.-Col. C.A.M.C.

British Expeditionary Force, France, Jan. 1st.

Universities and Colleges.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

M.B., CH.B.—O. C. M. Davis, Hilda K. Ewins. *Part I (including Forensic Medicine and Toxicology)*: E. J. Ball.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*†W. J. May, *†G. S. Mitchell, *†L. F. Pain, *†G. C. N. Younger.
MEDICINE.—*†E. V. Beaumont, *†H. M. Gray, *†L. Kahan, †W. J. May.
FORENSIC MEDICINE.—J. Y. Dent, P. C. C. Fenwick, H. M. Hobson, G. C. N Younger.
MIDWIFERY.—P. G. H. Bayon, W. F. R. Castle, B. Ghobrial, E. N. Glover, W. H. A. Pratt, A. L. Watts.

* Section I. † Section II.

The diploma of the Society has been granted to the following: W. F. R. Castle, L. Kahan, W. J. May, and G. S. Mitchell.

The Services.

EXCHANGES DESIRED.

CAPTAIN H. W. BAYLY, R.A.M.C.T., 2/1st South-Western Mounted Brigade Field Ambulance, Maresfield Park Camp, Uckfield, Sussex, gazetted Captain September 4th, 1915, late Civil Surgeon, General Plumer's Force, South Africa, wishes to exchange with a Medical Officer to a British Cavalry or Yeomanry Regiment in France.

Captain R.A.M.C.(T.F.), honorary surgeon to civil hospital at present stationed in England, attached as Medical Officer to Divisional Train, A.S.C., desires an exchange with an officer holding a hospital appointment at home or abroad in which operative surgery is available.—Address No. 950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

NATHANIEL E. ROBERTS, M.B., C.M.EDIN., D.P.H.,

ASSISTANT MEDICAL OFFICER FOR THE PORT OF LIVERPOOL.

WE regret to announce the death of Dr. N. E. Roberts, which took place at Menai Bridge. Until twelve months ago he was enjoying life and fulfilling his various public duties with his customary energy. His health gradually began to fail and he was reluctantly compelled to retire from active practice. For some months he had lived with his sister, and it was hoped the rest in his native land would restore his health. Dr. Roberts was a good example of self-help and dogged perseverance. In his early youth he worked as a pork butcher, then he qualified as a chemist, and finally by his indomitable energy studied medicine at the University of Edinburgh, where he graduated M.B., C.M. in 1879. He took the D.P.H., L.R.C.P.S.Edin. in 1892. After spending some time at Bangor he went to Liverpool where he held many public appointments. He was recognized as an authority on infectious fevers, having gained his experience during the twenty-three years he was visiting physician to Grafton Street Fever Hospital. He was also assistant medical officer to the Port of Liverpool; his duties were to visit ships arriving in Liverpool and inspect the bills of health and detect and deal with any source of infection. He was also an examiner in and teacher of vaccination and lecturer on infectious diseases in the University of Liverpool; at one time he was Vice-Chairman of the Medical Faculty.

Dr. Roberts was an enthusiastic volunteer and territorial, retiring with the rank of Lieutenant-Colonel R.A.M.C. (T.F.).

A man holding so many public appointments had little time for private practice, and this partook more of consultations in the special subjects on which he was an authority than of general practice. Nevertheless Dr. Roberts was a man who never narrowed his interest in matters medical, and was a frequent attendant at the meetings of the Liverpool Medical Institution.

He had many friends, won for him by cheerful genial disposition and sense of humour, and, in spite of a rugged impression, rendered more noticeable by his shaggy eyebrows and massive hair, he was always welcome among his medical friends, and many a joke about his fellow countrymen and their ways passed his lips. He was a widower, and leaves no children. The funeral, at Smithdown Cemetery on February 23rd, was attended by representatives of the public institutions with which he was connected.

BY the death of Mr. CHARLES LAKIN on February 10th, at the age of 67, Leicester loses one of its oldest medical practitioners. Mr. Lakin was educated for the medical profession at Queen's College, Birmingham, and after taking the diploma of L.R.C.P.Edin. in 1872 was for a time resident obstetrician at Queen's Hospital. Later he took the diplomas of L.R.F.P.S.G. and L.S.A. He commenced practice in Leicester in 1873 and quickly attained a prominent position. For the last thirty years he had been a member of the town council, and in 1892 was appointed an alderman, a position which he held at the time of his death. His best known public work was in connexion with the Sanitary Committee, of which he was vice-chairman for many years; he was also chairman of the Isolation Hospital Committee. He was Mayor of Leicester in 1908, an office that he filled with dignity and credit to the town. Of quiet, unassuming character, he spoke seldom, but rendered splendid service by bringing his medical knowledge to bear on questions relating to the welfare of the rapidly growing borough. Among his multifarious duties he found time to carry on the work of the honorary medical officer to the Wycliffe Society of the Blind, which looks after the interests of over 200 blind persons. Of genial nature, his patients found him full of kindness and sympathy, and many will mourn the loss not only of a trusted medical adviser but of a valued friend.

DR. GEORGE ALFRED HEBERDEN, D.S.O., of Victoria West, Cape Province, South Africa, died in a sanatorium on January 23rd, aged 55. He was the eldest son of the

late Rev. George Heberden, vicar of Rothwell, Yorkshire, received his medical education at St. George's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1888. Settling in South Africa, he served as surgeon-captain with the mounted forces in the South African war, went through the siege of Kimberley, and received the D.S.O., as well as the medal. He was afterwards district surgeon and railway medical officer at Victoria West.

MAJOR FREDERICK RICHARD MILLER, R.A.M.C.(T.F.), Deputy Assistant Director of Medical Services, 60th Division, died at Alum Chine Towers, Bournemouth, on February 4th, aged 50. He was the younger son of the late T. Lanfear Miller, of Cape Town, was educated at St. Bartholomew's, and took the diplomas M.R.C.S. and L.S.A. in 1886, and that of L.R.C.P.Lond. in 1887. He graduated M.D.Brux. with distinction in 1889. He was clinical assistant in the Royal Ear Hospital, and before the war was in practice in Kensington; he was a captain in the 6th London Field Ambulance, and was appointed to his late post on February 22nd, 1915. He was an ex-president of the Brussels Medical Graduates' Association and a member of the Red Cross Society of Madrid.

LIEUTENANT WILLIAM DUNMORE MURRAY, R.A.M.C., died in London in January, aged 48. He was educated at Glasgow University, where he took the degrees of M.B. and C.M. in 1888, and had been in practice in London for fifteen years, when he took a temporary commission in the R.A.M.C. He had recently been stationed at Colchester. He leaves a widow and two sons, the elder of whom is serving in the Northumberland Fusiliers.

Medical News.

THE University Court of Edinburgh has elected Dr. R. McKenzie Johnston a Curator of Patronage in the room of the late Sir William Turner.

H.R.H. the Duke of Connaught, Grand Prior of the Order of St. John of Jerusalem in England, has approved of the appointment of Sir William Bennett, K.C.V.O., F.R.C.S., to be Surgeon-in-Chief to the St. John Ambulance Brigade.

PROFESSOR M. WEINBERG, of the Pasteur Institute, Paris, will deliver a lecture on bacteriological and experimental researches on gas gangrene, with epidiascope demonstration, before the Royal Society of Medicine (1, Wimpole Street, London, W.), on Friday next, at 5 p.m.

THE Health of Munition Workers Committee has issued a memorandum on canteen construction and equipment numbered 6 (Cd. 8199. Price 4d.), which is an appendix to memorandum 3 on industrial canteens. The new memorandum is illustrated by detailed constructional drawings. Communications on the subject should be addressed to the secretary, Canteens Committee, Central Control Board, Canada House, Kingsway, London, W.C.

THE Royal Free Hospital has made its clinics for safeguarding infant life the consultative centre of departments devoted to infant welfare. An appeal is now made for £200,000 for additional accommodation for maternity and other special cases. A generous benefactor has already presented over an acre of ground adjacent to the hospital, and the first block of the new building will be commenced as soon as funds and circumstances allow. Donations should be addressed to Sir Francis Layland Barratt, Bt., M.P. (honorary treasurer), Royal Free Hospital, Gray's Inn Road, W.C., where full information can be obtained from the secretary, Special Appeal Fund.

AT the annual meeting of the Southport Infirmary on February 26th a tribute to the memory of Sir George Pilkington, adopted by the board of management, was reported. The resolution recalled that he had been chairman of the board for fifteen years, and concluded as follows: "Sir George's relations with his colleagues and the entire staff were always of the most cordial nature, and he enjoyed the confidence and affection of all. In him the infirmary has lost a leader of wisdom and resource, and a friend whose generous help was ever available. His memory will long be a stimulus to those who remain to carry on the work for the sick poor of this district, and especially at this time for the wounded soldiers who are entrusted to our care."

THE Pirogoff Society, the leading medical society of Russia, in a recent report states that the suppression of the drink traffic has led to a diminution of sickness, especially venereal and mental diseases, accidents (especially railway), fires, suicides, and crimes; and to an increase of industry and material wealth. Whether a return to beer and wine should be allowed while vodka continues to be forbidden is answered in the negative on the ground that these drinks, being pleasanter to the taste, attract women and children. Other measures to supplement prohibition are urged, such as a betterment of social conditions and an active propaganda for the enlightenment of the people regarding the evils of alcoholism. An inquiry made in the province of Penza showed that only 14 per cent. of former drinkers had used substitutes, and most of these were comparatively harmless beverages.

MR. LEWIN PAYNE opened a discussion at the meeting of the Odontological Section of the Royal Society of Medicine on February 28th on war injuries of the jaws and face. Communications were made by Dr. Hayes of the American Ambulance in France, Dr. Hotz of Paris, and Mr. J. F. Colyer. The debate will be resumed on Monday next at 5.30 p.m. In connexion with the discussion an exhibition of splints, models, photographs, and x-ray pictures is on view at the house of the society (1, Wimpole Street). M. Pont of Lyons has sent photographs and descriptions of cases of very extensive destruction of the jaws and face, and specimens of the apparatus used. The American Ambulance in France and the Ecole Dentaire de Paris have sent similar exhibits. The photographs show well the form of splint used and the permanent restorative apparatus. There are similar exhibits from the British hospitals, including x-ray pictures of two cases of bone-grafting of the mandible operated on at the Croydon Military Hospital. The exhibition is of the utmost practical interest, and remains open till Monday evening, March 6th.

THE Territorial General Hospital at Birmingham has followed the example of some others, and on January 1st issued the first number of a hospital periodical, with the title *The "Southern" Cross*. The 1st Southern General Hospital was established in the university buildings, Edgbaston, Birmingham, with 520 beds, and received its first convoy on September 1st, 1914. The number was subsequently raised to 1,040; sections were opened at Dudley Road, Stourbridge, Selly Park, and King's Heath; forty-seven auxiliary hospitals were organized, and many civil hospitals in the Midlands put beds at the disposal of the 1st Southern. Altogether 30,501 patients, of whom 235 were officers, were treated to the end of 1915. The first number opens with a portrait of the administrator, Lieutenant-Colonel F. Marsh, and a short note by him, in which he very justly observes that the work of such hospitals does something more than relieve suffering, for restoration of the sick and wounded to health means the return of trained soldiers to the firing line. Like its hospital contemporaries, this periodical is not all serious; in fact, it is very little serious. It contains a good many hospital jokes and some excellent caricatures. It is edited by N. Pollock, whose rank is not stated.

AT the usual monthly meeting of the Medical Sickness and Accident Society, on February 18th, when Dr. F. J. Allan was in the chair, it was reported that the sickness experience for January was slightly in excess of the expectation at this time of the year, and was generally accounted for by the number of claims for influenza. Special reports on all the chronic claimants now drawing sickness benefit showed that they numbered 40 and that the amount paid annually was £2,000. This is considered to be the most important work the society performs, as it is principally the sickness benefit received each week that enables the recipients to maintain themselves and their families. The votes obtained in consequence of the annual subscription of £105 to Epsom College has also enabled members of the society, crippled in health and unable to earn their living, to obtain Foundation Scholarships for their sons, thus giving them a first-class education at one of the foremost schools free. The balance-sheets for the year showed that the total funds of the society were now £274,700 and the annual income £37,000. It was resolved to place before the annual meeting in March a scheme of deferred annuities, starting at age 65, with five options before that age. Registered dental surgeons of military age are accepted under certain conditions which will be given on application. All applications should be addressed to the secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subject to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

J. M. states that the separate income of her husband is probably under the exemption limit, and that their combined incomes do not exceed £500. Should separate returns be made?

*** A recent Finance Act provided that a married woman might be assessed separately where notice requiring that method to be adopted had been given in due time. "J. M." is now too late to make that claim for 1915–16, but might send a note to the local surveyor of taxes, asking for any appropriate form of claim to be sent to her for the year 1916–17. The fact that separate returns are made does not affect the amount of the *total* allowances to be made, but the resulting assessments should be more convenient and be more easily verifiable by "J. M." when the notices are issued next autumn. Assuming that "J. M.'s" earnings are independent of those of her husband, the abatement (or exemption) would apply as if she were a femme sole.

T. R. A. has been asked by the surveyor of taxes to supply him with a statement showing his receipts and expenses for the year 1915.

*** From the extract quoted the letter of the surveyor would appear to refer to the next assessment to be made, namely, that for the financial year 1916–17. Presumably the request is made with a view to agreeing our correspondent's liability with him before the return forms are issued for 1916–17. "T. R. A." is not under any statutory obligation to comply with the request, but we may perhaps say that we understand that the surveyor's procedure is not unusual. If the amount to be returned for assessment be agreed beforehand, the possibility of an estimated assessment being made is eliminated, and therewith the risk that our correspondent may ultimately be *required* to produce the statement in question in connexion with an appeal.

THE TREATMENT OF PRURITUS ANI.

A. E. asks as to the treatment of pruritus ani with surrounding eczema in a man of gouty habit, aged 50. General treatment and diet for the gout and many ointments locally, and an operation for haemorrhoids both internal and external, and division of the nerves on both sides have been tried during the last three years. The irritation is no better and is only relieved by cocaine locally.

*** An instructive series of letters on this subject will be found in the JOURNAL, vol. i, 1914, following a surgical memorandum by Dr. J. Cropper, p. 966. One correspondent declared that, according to his experience, about five or six applications of *x* rays will cure any case which is not merely a complication of polypus, fissure, haemorrhoids, etc. Dr. Cropper, however, replied (p. 1330) that few people will use *x* rays if they can get relief from simpler remedies. The local treatment, advocated by Dr. Cropper and also successfully carried out by a medical patient suffering from severe chronic pruritus, was the application of tincture of iodine in full or half strength, three times weekly. Compound tincture of benzoin, painted on the parts twice or three times daily, is said to be even more efficacious after several applications of iodine, which should be reapplied from time to time when found necessary.

LETTERS, NOTES, ETC.

COLONEL RIORDAN, R.A.M.C. (ret.), has reduced the price of his *Manual for Army Medical Services* (London: Eyre and Spottiswoode) to 3s.

WITH a view to liberating Russia from the yoke of dependence on German trade, the Russo-British Trade Exchange Company has published a *Directory of British Manufacturers for Russian Trade* (5s.). It furnishes the Russian consumer and tradesman with an authentic directory of British manufacturers printed in the Russian language, with trade headings in Russian and English, and copious advertising pages. The book is well got up and illustrated, and is designed for circulation in Russia. So far as we can judge, it has received the support of many of the most representative British manufacturing houses. It fills a want that has been cried aloud for many months by all our British writers and authorities on Russian affairs, and we wish it all success.

"URODONAL."

WE have received for examination a sample of a granular effervescent preparation made by J. L. Chatelain (Paris) and put forward under the name "urodonal" for the treatment of rheumatism and all uric acid troubles. It is stated to contain hexamine, lysidine, and quinate of piperazine; it is in the form of large dry granules, which dissolve in water with slow effervescence. Analysis showed the presence of a substantial amount of hexamine, together with a much smaller quantity of a base or bases of the group represented by piperazine and lysidine. Hexamine, it will be remembered, is the term used in the *British Pharmacopoeia* of 1914 for hexamethylenetetramine, a synthetic drug to which a great number of names have been given, including formamine and urotropine. Lysidine is ethylene-ethenyl-diamine, and is nearly related, both chemically and in its properties, to piperazidine, which is diethylene-diamine. Piperazidine usually dissolves the uric acid in a test tube, but it is very doubtful whether it exercises any such solvent action in the body. The *British Pharmaceutical Codex* states that the amount of piperazidine appearing in the urine is very small, and is found to be in combination with the stronger acids and not with uric acid. The antiseptic action of hexamine is exerted only in acid urine. Urodonal appears to be freely advertised to the public in France, and also in this country, as a specific for uric acid troubles. Its composition, however, does not seem to us to justify any very sanguine expectations as to its efficacy in this respect.

THE CLINICAL VALUES OF A URINE TEST GLASS.

DR. C. O. HAWTHORNE (London, W.) writes: In these days of multiplied and costly clinical machines on the one hand and of the need for economy on the other, it may be worth while to note what varied and practical services may be obtained from so simple and inexpensive a piece of apparatus as a urine test glass. In the first place, the glass makes an excellent stethoscope, more particularly when—as cannot always be avoided—auscultation has to be conducted through the patient's clothing. Secondly, if the cylinder is grasped in the physician's hand and the edge of the flattened base used as the head of a hammer, a suitable plexor for heavy percussion is provided, should this mode of inquiry be regarded as necessary. Employed in this same way also the glass is exactly the apparatus required to provoke the knee-jerk and the heel-jerk, as well as the tendon-jerks of the upper limbs, while the "spout" offers itself invitingly when the enterprise of the plantar reflex has to be undertaken. Again, rolled over the surface of the skin, the glass differentiates haemorrhagic and pigment spots from spots due to congestion or inflammation; and, once more, the cylinder is a convenient object for the patient's grasp when intravenous medication or venesection is in progress. All these functions may be added to the particular purpose for which the glass was called into being, and there still remain for gratitude the modest market value of the apparatus and the readiness with which it may be kept in a condition of cleanliness exalted even to the level prescribed by the most rigid of the bacteriological pharisees. I have often demonstrated these utilities to classes of students and practitioners, and perhaps, under the stress of the present economic situation, they may be deemed worthy of introduction to a wider audience.

THE IMMEDIATE TREATMENT OF SEVERE POST-PARTUM HAEMORRHAGE.

DR. W. J. L. FFRENCH (Barnetby, Lincolnshire) writes: After an experience of over twenty years in an extensive midwifery practice, I have no hesitation in stating that the most satisfactory and expeditious method of dealing with this urgent condition is to introduce the right hand into the vagina, grasp the uterus firmly, and make pressure against the left hand pressed equally firmly on the fundus externally. There need be no fear of sepsis, except in the minds of the nervous and inexperienced, if the hand has been previously thoroughly cleansed with ethereal soap.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
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An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.